Improving the quality of Business Statistics through Profiling

Ioannis XIROUCHAKIS, Eurostat, Ioannis.XIROUCHAKIS@ec.europa.eu

Vincent HECQUET, INSEE France, Vincent.HECQUET@ec.europa.eu

Abstract

Economic globalization and the way multinational enterprise groups organize themselves have led to increasingly complex organizations and to a growing gap between their legal and economic structures. Profiling is a method to analyse the legal, operational and accounting structure of an enterprise group, in order to establish the statistical units within that group, their links, and the most efficient structures for the collection of statistical data.

National Profiling increases the relevance and quality of business statistics. Profiling of the most significant groups relies on establishing communication between dedicated teams within statistical institutes and group representatives. Moreover, it aims at suppressing "double-counting" for non-additive variables and at delineating the economic activity of groups on the national territory.

Large groups are particularly internationalized, having affiliates in different countries. Therefore, cooperation between statistical institutes is required to understand their business and structures. Since 2013 Eurostat has been supporting projects with Member States to test European collaborative Profiling and to agree on a common methodology based on test results.

The main results in terms of quality improvements include (i) consistency of the attributes of multinational groups across national borders; (ii) better understanding of the groups' activities, contributing to their consistent view and treatment; (iii) more accurate evaluation of their footprint on the national economies and consequently (iv) improved quality of national statistical business registers and of the EuroGroups Register containing the biggest multinational groups present in Europe.

Keywords: business statistics, profiling, multinational groups, enterprises

1. Background

During the last decades the economic consolidation worldwide has altered significantly the economic reality. Many business sectors are today dominated by multinational groups, which are organized in various and often complex structures.

The increasing complexity of multinational groups and their global production arrangements are a challenge for traditional statistical production. Firstly, the activities of the groups should be correctly reflected in national economic statistics. At the same time, consistency of data across different statistical domains should be ensured. In this context, the complex structure and production arrangements of the groups, as well as the relevant relocation of activities and assets should be analysed, as also proposed in this paper. The activities of groups cannot be neglected as they

impact quality and bring breaks in the time series of various statistical domains, e.g. Structural Business Statistics (SBS), Foreign Affiliates Statistics (FATS) and accounting frameworks such as National Accounts, which use them as input data.

In this context, several European national statistical institutes (NSIs) have decided to go beyond the legal unit and to produce statistics on *enterprises* in the economic meaning, according to the European Regulation 696/93.

The delineation of the enterprise as a statistical unit is done by *Profiling*. As explained in the following, Profiling helps analyze and understand better the economic reality of multinational enterprise groups both at global and at national level. At European level in particular, initiatives are established to encourage and support cross-border collaboration, in terms of the so-called *European Profiling*.

Certain NSIs started already in the 1990s experimenting with *national Profiling*, including for example the Netherlands, the United Kingdom, Canada and Australia. In the European Union, significant efforts have been invested during the last decade to systematize national Profiling. Several countries have established separate Profiling teams with regular activities (such as France, Italy and the UK) or include Profiling into wider initiatives such as Large Case Units (as for example in the Netherlands). In fact, all European NSIs are actively implementing national Profiling, with the great majority participating also in the collaborative process of European Profiling.

2. The statistical unit "enterprise" in business statistics

The delineation of the *enterprise* as a statistical unit is crucial for calculating economic statistics that reflect accurately the economic reality and are not for example sensitive to legal reorganizations within groups. According to Regulation 696/93, "*the enterprise is the smallest combination of legal units that is an organizational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources*".

When a legal unit is not controlled by a group, it forms by itself an enterprise provided that it is active, i.e. it generates turnover, employs staff or makes investments. Groups can be organized in one or several enterprises, as a group may consist of only one enterprise (as a whole) or it can represent a diversified conglomerate with

several business segments having a "certain level of autonomy" (and thus several enterprises may have to be delineated in them).

When the enterprise is systematically equated to the legal unit, as it was common practice until recently, the true situation in the productive structure may not be correctly reflected. Many legal units controlled by groups are likely to have little (if any) decision-making autonomy. Implementing the definition of the enterprise provides a better view of the economic concentration.

3. Profiling in the ESS

3.1. National and European Profiling

Profiling analyses the economic and operational structure of national and multinational enterprise groups and thus reflects better their activities. When Profiling is carried out by a team within the national economy, we refer to *national Profiling*. The latter is achieved by a combination of different methods described below.

National profiling is generally considered the best method to delineate the statistical unit *national enterprise* (commonly referred to as ENT). Nevertheless, national Profiling provides a view of the group limited to the country border. This partial view may be different from the global view of the group; for instance, local and global group activities may differ significantly. Profiling large multinational enterprise groups requires thus international cooperation.

European Profiling is carried out collaboratively by national profilers of the country where the global decision center (GDC) of the group is located (the *GDC profilers*), together with national profilers of the countries where the group is present (the *partner profilers*). GDC profilers delineate the technical unit *global enterprise* (commonly referred to as GEN), starting e.g. with the business segments of the group. In this way, temporary national ENTs are generated as the national footprints of the GENs. In a second stage, partner profilers take over to validate their national ENTs and ensure consistency between the European and the national level, at least as regards to group perimeter, activities, employment and turnover. European Profiling is organized following a methodology finalized under the ESBRs project.

3.2. The ESBRs project

In 2013, Eurostat and the European Statistical System (ESS) launched the *European system of interoperable statistical business registers* (ESRBs) project to address shortcomings affecting the quality of European business statistics due to globalization, and in particular inconsistencies coming from different practices in national statistical business registers (national SBRs), lack of harmonised approaches in describing cross-border phenomena and inefficiencies due to lack of common standards, IT tools, and remote access facilities.

Eurostat co-finances European Profiling activities within the framework of the ESBRs project. During the period 2013-2017 more than 300 multinational enterprise groups were collaboratively profiled (at least once) by profilers in the Member States. Collaborative European Profiling is supported by the Interactive Profiling Tool (IPT), developed by the ESBRs project. The resulting profiles and relevant confidential microdata are also maintained therein.

One of the most important deliverables of the ESBRs project is the EuroGroups Register (EGR) 2.0. This important system contains today around 100.000 of the largest multinational groups, their characteristics, legal unit structure, along with data on employment, turnover and activities of their constituent legal units. This information is updated in annual cycles and serves as a source for calculation of statistics on globalization, together with national SBR information.

European Profiling aims also at improving the information maintained in EGR and in national SBRs. In this context, the ESBRs project envisages also the integration between Profiling and EGR, as well as increased interoperability with national SBRs.

Virtually all 32 EU Member States and EFTA countries are working currently on EGR, while 26 are working and/or testing European Profiling on IPT.

3.3. Profiling methods

The profiling process is called *manual* when profilers analyze available information on a group and delineate enterprises within this group on an individual basis. This method is costly in terms of time and resources and requires specific skills from the profilers; it can therefore be applied only to the largest most relevant groups. In manual Profiling, profilers start with desk work, including e.g. checking national SBRs and EGR, OFATS and SBS surveys, the group's website and financial reports.

When comprehensive dialogue with group representatives (generally accountants) takes place, we refer to *intensive manual Profiling*. When the analysis does not involve group representatives, the term *light manual Profiling* is commonly used.

At the same time, the great majority of groups in all countries are small and medium sized. Taking into account resource constraints, these groups are recommended to be profiled via automated algorithms. This method is called *automatic Profiling*.

The table below provides an overview of the Profiling methods. Variations exist, depending on the particular country.

Table 1. Profiling methods with respect to target groups

Target population	Profiling method	Approach
Largest (top N) complex groups	Intensive national/European Profiling	Desk preparatory work / meeting with group representatives / manual delineation of enterprises / collection of consolidated accounts / data input in national/European profiling tools
Large complex groups	Light national/European Profiling	*Intensive Profiling* but without meeting group representatives
Medium-sized groups	Automatic national Profiling	Automated algorithms. <u>Some countries:</u> surveys on intra-group transactions for better consolidation
Small groups	Autom. national Profiling	Automated algorithms
Foreign-controlled groups of all sizes	Intensive or Light European Profiling	<u>Some countries:</u> taking advantage of units created on national territory by foreign profilers

4. Quality improvement

As outlined above, Profiling aims at improving data quality in statistical business registers and subsequently the quality of the disseminated business statistics. The experience of the last few years is encouraging in this respect.

These quality and consistency improvements result from (i) enhanced understanding of the activities of groups through the study of annual reports, (ii) discussions with group representatives, (iii) exchanges between the Profiling teams of different countries and (iv) discussions and reflections with users, e.g. business registers officers, FATS and SBS statisticians, national accountants, and others.

4.1. Observed results

Taking into account the results of European Profiling activities in the ESS, certain general observations can be made. Firstly, the enterprise seems to provide a better

view of the concentration of the economic structures (as the number of enterprises is significantly smaller than the number of legal units).

Thanks to Profiling non-additive variables (such as turnover) are now consolidated within the enterprise and reflect market flows that are closer to reality (as the consolidated turnover of the enterprises does not comprise turnover from sales to legal units that are part of the same enterprise). No change is observed in the values of value added or employment as these are additive variables.

The enterprise provides a better breakdown by economic activity sector. Profiling reallocates the services sector subsidiaries to their manufacturing enterprises, thus increasing the share of manufacturing in the economy. A good example for the legal units' reallocation is the case of foreign trade. Many large manufacturing groups create legal units dedicated to bill their sales including their exports; these legal units are logically classified in the wholesale activity. As a consequence, the weight of the wholesale sector in exports (when measured in legal units) is overestimated because these exports are in fact performed by manufacturing groups.

The refocusing on manufacturing is also visible for certain aggregates that are particularly affected by spin-offs to legal units such as net assets. Most groups have legal units classified under real estate, specialized (scientific and technical) activities or administrative and support services (notably head offices). As a consequence, the weight of services in the economic structure (as measured through legal units) seems to be overestimated.

4.2. Reported improvements

The tables below depict the quality improvements harvested from the experience of national profilers working on national Profiling, but also European Profiling under Eurostat coordination.

Table 2. Quality improvements from Profiling in general

Action	Improvement in quality	Improvement in approach
Go beyond legal units and legal group structure	The unit enterprise has an economic meaning – business statistics unaffected by legal reorganizations within groups	Profilers delineate enterprises within groups

Avoid double counting of the non-additive variables	Real market flows are monitored / Series breaks due to reorganizations are avoided	Intra-group flows are consolidated within the enterprises
Group productive, ancillary and sales legal units in enterprises	Performance ratios (e.g. productivity, assets over employment) are calculated on meaningful units	Calculate relevant performance ratios on enterprises
Delineate enterprises with appropriate size and main activity	Sizes/activities distributions are calculated on enterprises with economic meaning	Better understand and evaluate the size/activity distribution in the economy
Evaluate the footprint of multinational groups on a national economy	Market flows and economic significance are evaluated on an appropriate unit	Monitor real market flows and the weight of a group in a country

At national level, the direct communication with at least the largest groups has been found critical. The updates of the registers to reflect the improved understanding of the group structures result in improvements in domain-specific statistics.

Table 3. Quality improvements from national Profiling

Action	Improvement in quality	Improvement in approach
Establish dialogue between profilers and group representatives	Collected data are closer to the business reality of the groups	Meet representatives of largest local groups
Update national registers with group data	National registers contain the most reliable and up-to-date information	Define national enterprises and collect data on them

At international level, most benefits are derived from the international collaboration and data exchange/sharing.

Table 4. Quality improvements from European Profiling

Action	Improvement in quality	Improvement in approach
Locate correct country of group headquarters (Global Decision Centre)	Frames for statistics on globalization (e.g. FATS) in partner countries are improved	Collaborate with group representatives and partner countries
Ensure cross-country consistency on multinational group attributes	Improve national statistical business registers, improve EGR, distinguish group heads and decision centres, treat joint ventures / special purpose entities	Collaborate with group representatives and partner countries
Correct cross-border relationships between legal units in a group	Improve national statistical business registers, improve EGR, improve frames for statistics on globalization	Collaborate with group representatives and partner countries
Define global and national activities of multinational groups	Consistency between European and national picture of group activities	Collaborate with group representatives and consider national adaptations
Establish structural models of groups	Better understanding of the economic reality	Share and compare results of European Profiling in the ESS

Certain national profilers report additional quality benefits from European Profiling, such as achieving consistency across countries in the process of data collection and improving consistency on particular legal forms or units. Others benefit from realizing that certain local legal units belong to a group or by redefining national enterprises, based on a higher-level picture provided by a partner country.

Better insight on industries and multinational enterprise groups can be useful for users dealing with sectoral analysis on globalization and global value chains, FATS production and so on.

Such improvements enable the NSIs involved in Profiling not only to update and improve the quality of their national registers and statistics but also their national processes.

4.3. Preliminary findings from IPT data

The analysis below concerns 157 groups profiled collaboratively by 19 European countries using IPT within the scope of grants co-financed by Eurostat in 2015 and 2016. These groups employ together 4.2 M employees, control 18,572 legal units, with half of them having units in more than 16 countries.

Profiling of these groups resulted into 441 global enterprises (GEN, as mentioned in Section 3 above), with one third of the groups delineated in only one GEN. The number of GEN delineated per group increased gradually to maximum 8 for only 6 groups. This is a potentially important finding for business statistics, which also indicates homogeneous Profiling approaches among countries.

The results of Profiling of large and complex groups in this exercise did not exhibit strong connection between the number of GEN and their economic significance. For example, several groups in services are economically significant but have relatively simple structure (distribution, IT services, airline companies). Some of the largest manufacturing groups are centrally managed with one single activity and constitute therefore a single GEN, while other groups are very diversified conglomerates. Even in the smallest (in demographic or economic terms) countries, one finds highly diversified groups.

It could be inferred that, by considering groups of all sizes, the percentage of groups consisting of only one GEN in the economy would be even higher (as the great majority of small and medium groups consist of one GEN).

Focusing on the most-represented industries in the sample, Manufacturing (section C) and Business to Business, B-to-B, (sections JA, JC, M, N[1]), there are 88 manufacturing groups, employing 1.89 M employees and controlling 10,310 legal units which were profiled in 230 GEN, versus 18 B-to-B groups, employing 839 K employees, controlling 2,271 units in 44 GEN. Again around a third of the groups were profiled in a single GEN.

Table 5. Employment distribution in GEN and legal units in profiled groups in sample

Groups	# groups	# groups with 1 GEN	employees / group	GEN / group	Units / group	employees / GEN	employees / unit	Countries involved
Manufacturing	88	31	21,533	2.8	117.2	8,239	184	23
B-to-B	18	7	46,613	2.4	126.2	19,069	369	22

These observations confirm the expected, i.e. manufacturing groups have more complex structures than B-to-B ones. Manufacturing groups are generally profiled in more than one GEN. A legal unit in a B-to-B group employs twice more employees than in manufacturing, which indicates a simpler internal structure.

Additional interesting observations stem from the table below. The consolidation of the groups towards their main activity at GEN level is evident.

Table 6. Employment distribution (percentages) in manufacturing and B-to-B groups in sample

Activity / NACE	Manufacturing groups (C)		B-to-B groups (JA,JC,M,N)	
	GEN (%)	LEU (%)	GEN (%)	LEU (%)
C: Manufacturing	79.9	72.1	2.7	5.2
G: Wholesale and retail trade	9.8	16.5	0.0	1.2
H: Transportation and storage	4.9	1.2	0.0	1.2
J: Information and Communication	0.3	0.6	5.6	12.3
M: Legal, accnt., scientif, prof. activ..	0.8	3.7	2.9	4.9
N: Administrative and support services	1.6	0.8	86.0	64.6
Other	2.8	5.0	2.9	10.5
All	100.0	100.0	100.0	100.0

From the analysis overall, one could conclude that (i) manufacturing groups are complex and their real activities should be taken into account and that (ii) the

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[1] Section JB Telecommunications is excluded because its consumers are rather private individuals than businesses.

tendency of all countries to delineate all legal units in a group under one or a few GENs could imply a notable shift in business statistics.

5. Conclusions

National and European Profiling improve the quality of business statistics by helping the national statistical institutes understand better the economic reality of groups and delineate effectively the statistical unit *enterprise*. The use of the *enterprise* allows business statistics to remain unaffected from legal reorganizations within groups. European Profiling enables business statisticians to take into account the strong international dimension of multinational enterprise groups. Consistency between the national and European dimension is of major importance.

The EU Member States have already profiled collaboratively more than 300 groups in the context of the ESBRs project and the methodologies and tools developed therein. The first important business results are already at hand.

International collaboration and technical work in the area of Profiling should continue towards increasingly efficient methods of analysis and data exchange/sharing. Profiling is commonly a costly and resource intensive activity. Investment into Profiling methodologies and tools is important for the quality improvement of business register data and subsequently of business and economic statistics.

6. References

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