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Session 6: Profiling and Globalisation

Profiling in Statistics Sweden: How to describe reality in a complex business environment

1. Introduction

For several decades, large and often multinational companies have increasingly organised their business across more legal entities than before. Auxiliary activities are often placed in separate legal units and mistakenly seen as primary production in the economic statistics. This overestimates the number of enterprises and several economic variables, such as turnover and production value. Therefore, how business groups choose to organise themselves can have effect on the distribution of GDP across sectors and statistics by size class. There is a risk that certain aspects of business economy will be misinterpreted, for example entrepreneurship and where job growth occurs.

Through profiling, corporate organisational and control structures can be better described, thereby producing more relevant statistics of higher quality. During 2017-18, Statistics Sweden has therefore intensified work on profiling large business groups.

In this paper, we initially describe the problem. We then review the methodology that has been developed, which includes manual and automatic handling as well as consolidation. The profiling will affect not only the statistics but also the work on producing the statistics.

This paper will describe practical problems, both with the creation of the statistical units and with the effects on sampling and data collection. Profiling will inevitably lead to an initial break in the time series. However, this is necessary in order to ensure stability over time.

2. Business Profiling

In the Swedish Business Register (BR), there are approximately 35 Enterprises (ENT) that consists of more than 1 legal unit (LEU). In addition, there are about 35 ENTs that are divided in Kind of Activity Units (KAUs). To better comply with the EU-Regulation on Statistical units (Council Regulation no 696/93), Statistics Sweden have intensified the profiling work during recent years. Our plan is to profile at least 50 more business groups manually. We have also developed a method for automatic

profiling of smaller business groups. However, a decision about implementation of automatic profiling has not yet been taken.

3. The proposed profiling strategy

The need for profiling is due to the fact that the administrative world does not always show the reality we want to measure. The target population (ENT / KAU / Local KAU) is not the same as the legal population (LEU / Local unit (LOU)).

Each business group has its own legal structure and from these business groups we have to delineate the ENTs we want to measure (the target objects). We want to avoid that different ways of organising business groups will affect the statistics.

About 10 percent of the LEUs in the BR are included in the Swedish Business Group Register (KCR), but these 10 percent account for almost 70 percent of the number of employees. In order to handle this large amount of LEUs, a systematic approach is required and therefore a profiling process is proposed that meets the following objectives:

a) Create the prerequisites for profiling all business groups

b) Manage resources to address as much as possible the identified issues.

c) Systematically identify structural changes in LEUs or business groups.

We aim to create a system or process for profiling. The process will be based on various SAS-programs with various manual handling. The process can be followed chronologically. The layout follows five main steps:

1 Automatic profiling

2 Automatic control system

3 Manual handling and validation

4 Implementation

5 Adaptation

In order to manage resources, a priority system is required. We use an algorithm to describe the complexity of the groups. The more controls a group "gets stuck in", the more questions are surrounding the structure. This together with a size measure forms the complexity calculation.

The largest and most complex groups will be manually profiled.

For groups with a simple group structure, where no controls fall out, the breakdown in ENTs can be done automatically without validation.

For the intermediary of business groups, those who do not have a simple enough group structure to be handled completely automatically, but do not require intensive profiling, validation work is done. Depending on available resources, this work may be more or less extensive. Only units for which there are resources to validate are implemented in the BR.

4. The profiling method

4.1 Automatic profiling

The profiling will show how the LEUs in a business group are connected and which parts together form an ENT. In Sweden there are about 40,000 business groups, all of which need to be profiled. It is not possible to go through all manually and therefore a method of automatic profiling has been developed. The Swedish Group Register (KCR) contains all Group LEUs. The information is retrieved from annual reports and reflects the date of the closing date of the fiscal year. The profiling is based on the ownership conditions of the KCR.

4.1.1 Approach

As a starting point for the method, we use the definition of ENT according to the EU Regulation on Statistical Units. According to the regulation, an ENT must have control over its own resources and produce goods or services for the market.

We aimed to create an algorithm that points out the LEUs that together form an ENT.s. Based on the definition, we have formulated principles and subsequent rules that govern the delimitation.

Principle 1 – Control

A LEU owned by another LEU can not be considered to have full control over its resources and we have therefore used ownership according to KCR as an indication of control (or rather lack of control). According to the principle of control, for example, a subsidiary may be subject to a possibly merge with its mother.

Principle 2 - Joint output (Industry)

It is likely that LEUs in the same industry within the same group will produce the same output, especially if they have an ownership relationship between them. It is likely that these LEUs should belong to the same ENT.

Main rule 1: Mother and daughter who have the same industry (according to 4-digit NACE) should belong to the same ENT

Principle 3 – Relation between production and auxiliary activities

It is common practice for support services to be placed in separate LEUs. LEUs that only have the purpose to serve other group LEUs are considered as auxiliary activities. Traditionally, these have been classified as auxiliary companies (in the BR). Their values have then been moved to the industry they serve. These support services often belong to specific industries, but the values are usually small compared to producing LEUs.

Main rule 2: A subsidiary in a specific industry, which is small in relation to its mother (maximum 10% of the mother's turnover), should belong to the same ENT.

These rules and principles provide guidance for developing the methods used today. The aim is to improve the quality of aggregated levels, which can sometimes be at the expense of the quality of individual objects.

4.2 Manual profiling

An ideal situation would be to set up rules for managing different LEUs within a business group in order to make all profiling automatically. However, the large, usually multinational, corporate groups' organisation is too complicated. In these cases, automatic profiling may result in a failed result. Therefore, manual profiling is usually required for the largest business groups.

The EU's operational rules for profiling distinguish between simple (light) and intensive profiling. The simpler profiling method involves a desktop study, using available information, for example annual reports, on the group's websites or in surveys where the group or its LEUs are included.

The intensive profiling method means that the profiling also is done in cooperation with the business group. The profiling team visits the head quarter and receives information that are not publicly available. If business visits are not possible, discussions are taken by phone and e-mail.

Regardless of the extent of manual profiling, the starting point is the Swedish part of the business group. The profiler gathers information about the group structure, preferably starting with reading the consolidated accounts (available for Swedish groups, may be harder to find for foreign groups). The main activities of the business group are mapped. In the absence of a tool where you can structure the information, this is done in Excel. All information contained is documented. It is important to document the positions taken during the course of work.

The first time a group is profiled, it is usually a time-consuming process. Only one visit (to the headquarter of the business group) can take several working days per person (preparation, the visit itself, documentation, feedback). As groups are reorganised and new LEUs are added and others disappear, an update should be made at least annually. It does not have to be as time consuming, if nothing has happened, it is enough to document that fact.

One issue that we still have not solved is to what extent an ENT should be in control. The extreme is to consider the whole domestic (Swedish) part of a business group as an ENT. According to the European profiling method, the different segments within a business group could be considered as ENTs. It is also possible to create more than one ENT in a segment. The ENT should have sufficient control over its resources. However, what is sufficient control?

5. Consolidation

In order for the profiling to have the desired effect, financial flows between LEUs within an ENT need to be considered. This is done through consolidation. By consolidation, internal flows are eliminated to avoid double counting.

At the Structural Business Statistics (SBS) meeting in Luxembourg in April 2017, a Eurostat document containing recommendations for the implementation of ENT in SBS was presented. A number of SBS variables were suggested to be additive and non-additive. The additive variables can easily be aggregated when calculating data for ENTs. For the non-additive variables, consolidation of data is suggested when creating ENTs with more than one LEU.

Some examples of Additive variables

• Value added

• Gross operating surplus

• Change in stocks of goods and services

• Personnel costs

• Number of employees

Some examples of Non-additive variables

• Turnover

• Production value

• Gross margin on goods for resale

• Total purchases of goods and services

• Gross investments in tangible goods

A method of consolidation have been developed for the variables classified as non-additive. Some simplifications have been done in order to make the consolidation process a bit smoother. For example, if the turnover is to be calculated for an ENT, the turnover of the auxiliary LEUs will be deducted from other external costs for the same LEUs. This simplification means that a match between sellers and buyers within an ENT do not need to be done. At ENT level, it makes no difference, but it makes the calculations easier.

6. Practical issues

6.1 Profiling and frames

Profiling is highly dependent on administrative data and on the periodicity and time lag of administrative data. Most of the information used in profiling is annual; SBS-variables, ownership (collected from annual reports in Sweden) and so on.

In addition, much of the discussions regarding profiling and frames revolve around yearly frames. The EGR-frame is annual and so is the SBS-frame; also the current minimum requirement from Eurostat is that national business registers are updated annually.

However, in practice it is often necessary to update the BR with information before annual information is available. Mostly, this is determined by administrative data. In Sweden, the Tax office sends weekly deliveries with information about registrations on LEUs, such as newly registered and de-registered, and more specific registrations, such as registered to pay VAT, registered as an employer and registered to pay corporate taxes and social security contributions. Combined these registrations determine the status code of a LEU in the Swedish BR and whether a LEU (and connected ENT) is considered active or not.

This is also connected to the sampling frames produced from a SBR. In Sweden, sample frames are produced quarterly and coordinated over the calendar year using positive and negative coordination of random numbers. This means that a LEU (and connecting units) that was active in the March

frame but was deregistered in April should not be active in the sampling frames produced in May, August and November.

On top of this, the Swedish BR is required by law to have information about companies available to the public. Every week, all the changes made in the BR on LEUs are delivered to the public through private companies.

Combined, all of these pre-requisites make it necessary for the BR to be updated, including the profiled enterprises, continuously over the year. This is where register maintenance comes in.

6.2 Register maintenance

For newly registered legal units it will take up to a year before we learn if it is owned by another company or not, and as a consequence, if it should be considered an independent ENT or belonging to an already existing ENT. For smaller legal units, this is a small problem. For larger legal units, this is a large problem.

It is not uncommon that large business groups reorganise and simply move a big portion of its employees to a newly registered legal unit or just the sales (but not the employees) or both to the new company. This makes it hard to keep the integrity of a profiled ENT without doing register maintenance and light profiling all year round. Big changes within an enterprise group simply cannot wait for the annual report before it is reflected in the BR. Rather it needs to be handled right away.

This is partly because of how the Swedish BR system functions. ENTs, KAUs and LKAUs are not independent objects but rather aggregated from the information found on the LEUs and LOUs. All the objects are consistent with each other. If a change is made on the number of employees of a LEU, it is aggregated via its LOUs to the ENT, KAU and LKAU. Consequently, changes in administrative data are reflected right away in the statistical units.

It is important to point out that register maintenance is not only about recording actual changes but also becomes necessary in order to keep the profiled ENT intact when no real change has occurred.

6.3 The production processes

The main reason for not creating more ENTs that consists of more than one LEU is the difficulty for respondents to report data at the ENT level. The relatively small number of ENTs (consisting of more than one LEU) that is part of the BR today can all report at the ENT level. We have contacted some new large business groups to try to persuade them to report data at the ENT level. Our experience so far is that most new ENTs will not be able to report at the ENT level. The consequence is that we must continue to collect data at LEU level and do the consolidation ourselves. In order to do this effectively, production systems need to be changed. The way we work must also change. One example is that validation of data needs to be done at both LEU and ENT levels. This will make the production process more time consuming and there are also costs for changing the production system. Register maintenance work also becomes more time consuming. Over the next few years, we will gradually go against this way of organising our work, which will be a challenge.

7. Conclusions

Profiling is an ongoing process. We are still developing tools and the work processes. It is a time consuming task, which makes it essential to do the work as efficient as possible. Statistics Sweden participates in several partly EU-funded projects with the aim to together with other countries establish operational rules for this work. We need to work together in order to agree on best practice. At the same time, the way business groups organise themselves is to some extent national (for example, there are differences in tax legislation). Even with common guidelines for profiling, national legislation will differ between countries as well as the impact of profiling on economic statistics.