The Desired Future System of Statistical Units from the Perspective of Business Statistics

Peter Struijs[1]
Statistics Netherlands, P.O. Box 4481, 6401 CZ Heerlen, The Netherlands
p.struijs@cbs.nl

Abstract
In recent years, important steps have been taken to improve the harmonisation of the statistical units applied in the European Statistical System, which is based on a regulation adopted in 1993. However, despite considerable progress, the situation is still far from ideal, for several reasons. The definition and choice of statistical unit types of Business Statistics has never really been harmonised with those of National Accounts; the 1993 regulation did not take the international dimension into account; economic structures have changed; and the definition of the enterprise allows for various interpretations.

The paper looks at the harmonisation of statistical units from the perspective of Business Statistics. It starts with describing the situation of Business Statistics anno 2016 in respect of statistical units, in particular concerning the state of harmonisation. Thus, drivers for change are identified. These include the lack of a statistical units model, the need for clarity about the scope and intended use of different statistical unit types, harmonisation needed between populations of different statistical domains, and the relationship with statistical unit types used in National Accounts (in particular: the relationship between enterprises and institutional units). The effect of changes in economic structures, in particular in view of globalisation, will be discussed as well. The production environment of Business Statistics themselves is changing, which is another driver for change that will be given attention. More traditional discussions, such as on quality, or on how to deal with the need for homogeneous data in Business Statistics, including the possible role of the kind-of-activity unit, will get a place in the paper as well.

Key Words: Statistical Units, Business Statistics, Harmonisation

1. Background and Problem Statement

In a broad sense, Business Statistics report about variables pertaining to populations of businesses. This requires a specification of the notion of "business", and in fact different notions may be chosen for different purposes and statistical domains. In Business Statistics, these notions are referred to as statistical unit types. The population of businesses must be further delineated, for instance geographically and in terms of an industrial classification. For example, certain annual production statistics may refer to a statistical unit type called "enterprise" for a national territory and the manufacturing industries as defined in ISIC or NACE.

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For the European Statistical System (ESS), with which this paper is concerned, Business Statistics are to a large extent based on EU legislation. In particular, statistical unit types are defined in a specific regulation (EEC, 1993). This regulation, hereafter called the SU Regulation (with SU standing for Statistical Unit), defines eight types of statistical units:

- the enterprise (ENT)
- the institutional unit (IU)
- the enterprise group (EG)
- the kind-of-activity unit (KAU)
- the unit of homogeneous production (UHP)
- the local unit (LOU)
- the local kind-of-activity unit (LKAU)
- the local unit of homogeneous production (LUHP)

Specific Business Statistics have their own legislation, specifying the statistical unit type(s), among other things. This is done by making a reference to the SU Regulation. There is also specific legislation for National Accounts, of course, which for the purpose of this paper are not considered part of Business Statistics proper. Furthermore, there is supporting legislation on statistical infrastructure, such as on business registers for statistical purposes, on other relevant concepts, such as various classifications, and many other aspects of Business Statistics and their production.

The current system of Business Statistics of the ESS was effectively built in the last quarter of a century. In fact, the SU Regulation of 1993 was one of the first building blocks of the system agreed on. Given the importance of statistical units for the meaning and quality of Business Statistics, in particular their relevance, comparability and accuracy, a lot of effort was put in harmonising practices regarding statistical units in the ESS. Examples are the development of a manual for statistical business registers, the drafting of operational rules, research on modelling statistical unit types and classifications in the project CLAMOUR [2] (Lok, Struijs and Willeboordse, 2002), exchange of knowledge in Round Tables on business frames, a number of quantitative assessments of the effects of operational differences between countries, research by an ESSnet on profiling (the way of delineating large businesses), research by an ESSnet on consistency of statistics, the creation of a European Group Register (EGR), and a project on the development of a European System of interoperable Business Registers (ESBRs). Many countries received grants to improve their statistical business register or practices. Harmonisation was also looked at by several ESS governance groups and task forces.

The system of Business Statistics that emerged was a major achievement, since it consists of a more or less harmonised and regulated set of European Business Statistics, where in the early nineties countries had wildly diverging statistics, in contents, coverage, quality, etc. However, the system needed streamlining, and for this purpose a framework regulation was drafted, the Framework Regulation Integrating Business Statistics (FRIBS)[3]. Originally, FRIBS was also supposed to streamline the situation concerning statistical units by overhauling the SU Regulation and establishing operation rules, but during the preparation of FRIBS this appeared to be too ambitious. This had to do with the fact that, in the domain of statistical units, harmonisation had not progressed as much

[2] This project was part of in the European Fifth Framework research programme.
[3] http://ec.europa.eu/eurostat/about/opportunities/consultations/fribs

as desired. In fact, a large majority of the ESS countries had not yet implemented the SU Regulation, or only partly.
Instead, a declaration was drafted, in which the Business Statistics Directors Groups (BSDG) and the Directors of Macroeconomic Statistics (DMES) of the ESS expressed the intention to implement the SU Regulation in a consistent way throughout the EU (Eurostat, 2015). This Notice of Intention included an annex with operational rules for statistical units as defined in the SU Regulation and an annex with guiding principles for the consistent implementation of these operational rules in statistical business registers and Business Statistics. The Notice of Intention, which did not have the status of a regulation, recognised that much work still had to be done in order to achieve harmonisation in respect of statistical units, and called for

> *"the organisation of a more fundamental discussion on statistical units, separate from the Regulation 696/93. This would include reconsidering the choice of statistical units used in National Accounts, BoP and beyond."*

Now it is time for the more fundamental discussion on statistical units to get started. This paper – and in fact this session of ICES V – is meant to help launch this discussion.

2. Statistical Units in the Current System of Business Statistics

2.1 Background of the SU Regulation

When the SU Regulation was negotiated, the then twelve members of the EU (or rather, its precursor) had quite different practices concerning their Business Statistics and the statistical units used. This had to do with availability of data sources, national statistical history and traditions, national legislation on official statistics and related areas, the national governance structure and degree of centralisation, different views on how to serve users of official statistics, and availability of resources, among other things.

It appeared not to be feasible to agree on a system of statistical units in all its aspects, but it was nevertheless quite an achievement that a set of definitions of statistical units could be agreed on and codified in a regulation. The SU Regulation was a compromise, and hard choices were avoided or postponed in important areas:

- The regulation did not specify for what domains of Business Statistics each of the eight statistical unit types was meant to be used. (It even left open for what phase of the statistical production process they were intended – data collection, processing, dissemination.) In fact, no country made use of all eight types of statistical unit in their system of statistics. However, even this long list reduced the choice of statistical unit types to be used in Business Statistics. In particular, by accepting this list it was recognised that the nationally defined legal unit would not be considered, as such, a statistical unit type.
- The text was vague in many instances, sometimes at essential places, and this was in some cases part of the compromise. For instance, the ENT is based on the notion of autonomy in decision-making, but "a certain degree" of this is enough, according to its definition. This allows for huge differences in country practices, some countries even claiming that legal units themselves, by virtue of their recognition by law, can or must be considered ENTs.
- The regulation also comprises three unit types originating from the domain of National Accounts. These are the IU, the UHP and the LUHP. However, since

their definitions had already been fixed in the context of National Accounts, they were simply copied into the SU Regulation. No effort was undertaken to harmonise the statistical unit types of Business Statistics and National Accounts. As a consequence, there is much confusion about the relationship between in particular the ENT and the IU.

2.2 The Evolvement of Business Statistics and Their Statistical Units

The choice of using statistical unit types for specific Business Statistics was made in the regulations concerned. Perhaps the most important regulations are those concerning Structural Business Statistics (SBS), which is also a main source for National Accounts. Originally SBS had a limited scope, starting with industries such as manufacturing, for which the notion of the ENT obviously made sense. Nevertheless, a role for the KAU was also foreseen in order to obtain statistics that were more homogeneous in respect of activities. For Short Term Statistics (STS), which focus not on levels of economic activity but on the short-term changes therein (by means of indices), the KAU became the leading statistical unit type. However, STS was the exception rather than the rule, and the ENT emerged as the most important statistical unit type for Business Statistics in general. This was subsequently cemented by FRIBS.

For applying statistical unit definitions, operational rules were needed and developed, such as in the context of statistical business registers. They were aimed at the ENT rather than the KAU, since the ENT had to be included in the business registers, contrary to the KAU. Moreover, the KAU is delineated within the ENT, so it made sense to start with operational rules for the ENT. However, the operational rules that were developed did not have the same status as the SU Regulation, and during their development – and efforts to quantify their potential effect – countries generally did not change the way they identified their statistical units.

The situation was not made easier when the scope of SBS was extended to include other industries with non-profit and government actors. It became clear that applying the definition of the ENT required further study, since it was mainly modeled on the economic actors of the private sector. These and other difficulties, such as the relationship between Business Statistics and National Accounts, were hard to solve, and for good reasons priority was given to building and extending the system of compulsory Business Statistics and not to wait till the more fundamental issues were sorted out.

2.3 Other Difficulties with Statistical Units in Business Statistics

As mentioned earlier, the SU Regulation remained in force, but many countries still have to fully implement it. However, the Notice of Intention of the BSDG and DMES was a boost to its implementation, which is now also monitored systematically. Moreover, the annexes with operational rules and with guiding principles for the consistent implementation of these operational rules in statistical business registers and Business Statistics are very useful for the harmonisation of statistical practices regarding statistical units. Nevertheless, even for the ENT there are still many interpretational and operational issues to be further harmonised.

In fact, although much progress has been made in many respects, all issues mentioned above have not been sufficiently resolved yet. There are still discussions on the best choice of statistical unit types for different Business Statistics, especially because of the consequences of such choices for the different national statistical production processes.

And the set of Business Statistics still has not been designed as a coherent system, although FRIBS has done much to streamline them. The obscurities of the SU Regulation have been reduced by the operational rules, but some of the definitions are still flawed, and, in fact, some inconsistencies have become apparent in time (see next chapter). Furthermore, although the Notice of Intention was adopted by both the BSDG and the DMES, this does not mean that the statistical units of these domains have been actively and effectively tuned to each other. And there are still too many types of statistical units in the SU Regulation.

There are other reasons as well for regarding the current situation in respect of statistical units as not satisfactory. The world of statistics and the outside world has changed since the adoption of the SU Regulation in 1993. Statistical production processes, the policies of data collection and budgetary trade-offs have changed. The EU has been enlarged and more integrated, and a shared currency area introduced. Business Statistics at the EU level, however, do not refer to statistical units at EU level, but are the sum of national statistics which refer to statistical units at national level. At the same time most countries do not make many more – if any – Business Statistics than required by the ESS. Is this situation in line with user needs? Furthermore, increased globalisation has generated its own data needs, such as getting insight in global value chains, in particular the contribution of individual countries to these chains and their effects on these countries. What would an SU Regulation look like if it were designed taking all this into account?

3. Topics for the Fundamental Discussion on Statistical Units

What should be covered by the fundamental discussion asked for by the BSDG and the DMES, and what approach should be taken to the issues? So far the considerable progress made in building the EU set of Business Statistics has been the result of a very pragmatic way of advancing matters. What was missing was a shared strategic view on where Business Statistics should be heading as a system. Ideally the fundamental discussion would result in such a strategic view, to be used as guidance in the further evolvement of European Business Statistics, thereby optimising the fulfillment of user needs. And this evolvement should be as pragmatic as ever.

The following sections describe the main issues that may be covered by the fundamental discussion. Although some ideas on their solution will be provided, for the time being it is more important that the discussion is actually launched and that a broad agreement is reached on the approach to be taken in looking for solutions.

3.1 What Statistical Units Will Be Needed for European Business Statistics?

The needs of the actual and potential users of Business Statistics should be central in the fundamental discussion about statistical units. In this sense, the notion of statistical unit has to be understood as the unit type about which users get information, or, as expressed in the Notice of Intention of the BSDG and the DMES: "The term statistical unit applies to the unit referred to in the output of Business Statistics. These can be distinguished from those units from which the data are actually collected in the process of producing the output."

There are several issues to be considered in the discussion about what statistical unit types are needed:

- The most fundamental issue is perhaps the question whether Business Statistics at the level of the EU require statistical unit types defined for the EU territory as a whole. This would not preclude keeping statistical unit types at the national and subnational level, of course, but the consequences would be far-reaching nevertheless, if only in terms of the statistical production process. It seems plausible that from the users' perspective, EU level statistical units would make sense.
- A related issue is the question whether changes in the way the economy is structured, including across borders, lead to the need for new or adjusted types of statistical units. In particular there is a need for information on globalisation and global value chains, but it is not clear whether this should have consequences for the choice and definition of statistical unit types. (This is discussed in the contribution of Peter Boegh Nielsen to this session.)
- Even if only needs are looked at that have been around for some time, it looks like there are too many statistical unit types in the SU Regulation, for the needs of Business Statistics and National Accounts combined. Unit types that are analytic in nature (in particular the UHP and the LUHP) may not need to be defined as statistical unit types, and for the EG it is not yet clear for what domains this is meant to be the statistical unit type. It may very well make sense to produce statistics on the EG, for instance on certain financial phenomena or their role in business demography, but this needs to be made explicit. To the extent that Business Statistics and National Accounts make use of very similar unit types, the set of statistical unit types may also be pruned. In particular the need to make a distinction between ENTs and IUs is not clear (see also section 3.3).
- There is a clear need for homogeneous data, both in Business Statistics and in National Accounts. However, it is not clear how this can best be translated into statistical unit types, or even whether there is a need for statistical unit types aimed at homogeneous data at all. This is discussed further below (sections 3.2 and 3.3).
- For all statistical unit types that are deemed to be needed for Business Statistics, it should be made clear to what parts of the economy they are linked, and how they are linked to the other types of statistical units to be used in Business Statistics. This would imply that the scope and domains of the set of Business Statistics are harmonised, thereby making Business Statistics a real coherent system in respect of statistical units. This also involves having clear and explicit intended meanings and interpretations of the different statistical unit concepts. The concept of the ENT, for instance, may be based on economic theory. Statisticians have to take care that statistical unit types reflect concepts recognised by users.

Such an overhaul of the set of statistical unit types may sound overly ambitious, but it is time to have a fundamental discussion about the possible implications of the needs of users for the system of statistical unit types. Knowing what such a system would look like can only help when advancing the system of Business Statistics in an incremental way.

3.2 The Integration of Business Statistics and National Accounts

The relationship between Business Statistics and National Accounts is complex. Both domains have their own external users, but National Accounts are themselves also an important user of Business Statistics. National Accounts have been devised as a coherent

system, whereas traditionally Business Statistics comprise many domains, each with their own history, which only grew into a more coherent system after the development of, in particular, industrial classifications and statistical business registers. The development of National Accounts after WWII was itself one of the drivers of increasing the coherence of Business Statistics, both at the national and the international level.

Concerning statistical units, there are at least two areas where there is a need for more integration of Business Statistics and National Accounts. The first is the relationship between the ENT and the IU. They are defined differently, but they both aim at representing the structural organisation of production. The parts of the economy to which they are applied have a large overlap, leading to the issue whether – at least for that overlap – definitional differences are really necessary. For the ENT, autonomy is its main defining feature, and this is interpreted not in legal but in economic terms. It refers to the production role of the ENT. The ENT operates independently on the market, it is seen as an economic actor. The IU is also seen as an autonomous actor, but it is closer to the legal organisation of production. The use of market prices is used as a defining criterion, not the actual partaking in markets[4]. Users as well as producers of statistics would benefit if the gap between the two concepts could be bridged.

The other area in need of a more integrated approach of Business Statistics and National Accounts is the way of achieving more homogeneous – or functional – data on the production process. The statistical unit types for SBS and STS are the ENT and the KAU, respectively. The use of the KAU is supposed to contribute to more homogeneous data. This data is also used as input for National Accounts. However, from a Business Statistics viewpoint, using the KAU has a few drawbacks. In countries where the production processes of annual and short-term production statistics are integrated, it would make sense to base the integrated production process on a single type of statistical unit, and deal with the need for more homogeneous data by giving enough detail on inputs and outputs. And only in a few cases the KAU would be distinguished from the ENT anyway, since the operational rules of the Notice of Intention of the BSDG and the DMES mention high thresholds for a KAU to be distinguished. The question is whether there is a positive business case for keeping the ENT as well as the KAU as statistical unit types in the statistical system, which has to be parsimonious and understandable for users of statistics. This question is further discussed in the next section.

Whatever the solution, the needs of users of Business Statistics as well as National Accounts have to be recognised, and the integrated system has to optimise the satisfaction of all users. (The contribution of Sanjiv Mahajan to this session looks into these matters from the National Accounts perspective.)

3.3 Issues Known from the SU Regulation

When looking into the question what types of statistical units will be needed to fulfill the needs, one has to take notice of issues already identified in the context of the application of the SU Regulation. The following issues could be included in the fundamental discussion asked for by the BSDG and the DMES:

[4] In the context of National Accounts, the notion of market plays an important role in defining institutional sectors. In the context of Business Statistics, the notion of market is used for delineating ENTs.

- The ENT is defined in terms of legal units: it is a legal unit or a combination of legal units. There are two problems with this relationship. First, there may be legal units comprising more than one autonomous centre, and legal units carrying out ancillary activities for several ENTs. Second, legal units are defined by national law, which is different from country to country. This may in some cases impair the comparability of ENTs. Although in practice the ENT will be identified starting with information from administrative sources, such as information on legal units, it may not be the best solution to take the legal unit as the building block for ENTs, in its definition.
- The concepts used have to be well described and definitions have to be as precise as possible. An example of room for improvement is the wording in the definition of the ENT: the statement that it "benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources" is much too vague. The target concept is not clear, keeping in mind that it is meant to be applied to large, complex business organisations. Although there may be a whole spectrum of degrees of autonomy, the target should be expressed in a way that can be understood by users of Business Statistics.
- The concepts of the ENT and the KAU are very close. Although the KAU is meant to group activities within the ENT, there are conditions attached regarding availability of data on current resources and being an operational unit, conditions that bring it very close to the ENT concept. The KAU may also have secondary activities itself. Moreover, a high threshold applies for distinguishing KAUs, according to the operational rules mentioned in section 3.2. Keeping both types of statistical unit in the system may not be the best option.
- As the SU Regulation does not specify for what statistics the different unit types are intended, it is rather vague about the parts of the economy to which the definitions are intended to be applied. Can all types of units be applied to all NACE classes or institutional sectors? Since the statistical unit types form a kind of a hierarchy (i.e., the EG consists of ENTs, the KAU is part of an ENT, the LOU is part of an ENT, etc.), the question is also whether different layers of the hierarchy have the same coverage. For instance, is it possible that an EG consists of only one ENT? Could it then still be called a group?
- There are many issues which are considered operational issues, that in fact involve the basic interpretation and the logic of statistical unit types. Examples are how to deal with holdings, joint ventures, franchising and R&D. The discussion should not be bogged down by special cases, but considering some of them may help clarify the intended meaning of concepts.

This list of issues is not exhaustive, of course. One could also think of issues concerning the time dimension of statistical units, for instance. However, for the fundamental discussion called for it would be best to focus on the main issues, keeping a keen eye on the users of Business Statistics.

4. The Way Forward

It is important that the fundamental discussion be held in the right context, on the basis of the right assumptions.

The general idea is to describe the system of statistical units as a point on the horizon, as a reference for pragmatic, incremental changes. The main criterion for this point on the

horizon should be the envisaged user needs, not compatibility with current national statistical production processes. However, the ambitions should be realistic, the envisaged system of statistical units must be feasible in the long run.

In fact, the Notice of Intention of the BSDG and the DMES contains in its annex on guiding principles already a number of statements that should make it clear to countries that their concerns will be taken into account. There will not be any dogmatic, costly and compulsory application of definitions, as quality considerations are leading. For instance, as long as quality norms are met, it is hard to imagine a future system of statistical units in which the legal unit, or some other type of unit kept in national administrative registers, cannot be taken as a proxy for the ENT for a large part of the business population, for most countries. More generally, as long as quality norms are met, diverging national practices may co-exist. It is the statistical output that counts. However, in the communication with the users of Business Statistics there should be strict adherence to the agreed system of statistical units, such as reference to the agreed ENT definition in outputs on ENTs, even if in practice a proxy is used.

If the description of the system of statistical units resulting from the fundamental discussion is to be used as a reference for the steps towards its implementation, it should take the form of a business and information architecture. The core of this would then be a statistical units model. An attempt to draft such a model was made two years ago (ESS Task Force on Statistical Units, 2014), but this was largely based on the existing situation, and the model was not linked to the uses of the different statistical unit types. The statistical units model should not be a technical model for IT purposes, but a business model that can be understood by statisticians and users alike. The model would have to specify at least the following:

- The statistical unit types of Business Statistics and National Accounts.
- The logical relationships between all related unit types (one to many relationships, conditions for existence, etc.).
- The parts of the economy covered by each of these unit types, linked to their uses, specifying for instance to what extent market / non-market and profit / not-profit activities are meant to be covered.
- Geographical specifications, including the geographical level (e.g. EU, national, subnational) to which the unit type pertains.
- If statistical units are derived from units that are defined outside official statistics, such as legal units or other types of administrative units, their logical relationship with these unit types.

5. Conclusion

The current system of Business Statistics is without doubt a great achievement, considering the widely diverging national practices in the past, the context in which convergence was forged and the timespan in which the system was built. Nevertheless, there is still much work to be done in order to get a system of Business Statistics that is coherent in terms of the statistical units on which it is founded and that meets modern data needs. The call for a fundamental discussion on statistical units by the BSDG and the DMES is by all means justified.

The discussion will be long and difficult at times, but if the envisaged user needs are taken as guidance, the discussion is held with an open mindset and pragmatism prevails, the current set of Business Statistics may evolve into a truly harmonised system of Business Statistics, integrated with National Accounts, that fulfills user needs in an optimal way, including emerging needs such as on international aspects of the economy.

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