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Role of Business Registers

Business Register in an Integrated Business Statistics Production System

Abstract

At Statistics Finland, the Business Register has long served as an important data source and a sampling frame to all business and economic statistics as well as to a variety of population and social statistics. In addition, Business Register data – on aggregated and micro level – is regularly delivered outside the institute to various users and interest groups.

Since 2013, the central role of the Business Register was further strengthened as an integrated business statistics production system with Business Register as its core was implemented. Within an extensive revision project since 2010, the whole production process of business statistics from data collection to data publishing was renewed. Revisions included harmonization of methods and practices as well as elimination of overlapping work phases within and between different statistical domains.

The integrated system consists of a production database and a common data warehouse, where all the relevant business statistics are connected. The statistics covered include Business Register, Structural Business and Financial Statement Statistics, Regional Statistics, International Trade in Services, FATS statistics, Commodity (PRODCOM) Statistics and parts of Short Term Statistics. Data warehouse also serves as an input for several other statistics as well as National Accounts.

The system provides all the statistics with the same data content in order to produce consistent business statistics. Unit structures, as well as classifications and concepts used in several statistics were further harmonized during the revision project. One main idea of the integrated system is not to allow parallel unit structures, classifications and characteristics data within different business statistics, creating also the need for corrections in one place only.

The paper will present the integrated business statistics production system and Business Register's role within it. The most significant changes in the Business Register working practices, methods and data content are studied. Additionally, the main advantages as well as challenges of having a common, integrated business statistics production system are discussed from the point of view of the Business Register.

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1 Introduction

In this paper a revision made to Finnish Business Register, resulting in an Integrated Business Statistics Production System is presented. The main idea of the integrated system is to provide all the statistics with the same data content in order to produce coherent statistical outputs.

Chapter one gives an overview to the Finnish Business Register and its position in the Integrated Business Statistics Production System. In chapters two and three a few examples of developments made regarding the statistical units, the data content and publications are presented in more detail. Chapter four concludes with a brief discussion on advantages and challenges of an integrated business statistics production system from a point of view of a Business Register.

1.1 Finnish Business Register

At Statistics Finland, the Business Register serves as an important data source and a sampling frame to all business and economic statistics and to a variety of population and social statistics. In addition, data – on aggregated and micro[1] level – is regularly delivered outside to various users and interest groups.

Finland has a long history of efficiently utilizing administrative data sources, which is done at Business Register as well. As a result, we receive a good basis of information on the legal unit level from administrative sources. The most central source here for the basic Business Register data is the Finnish Tax Authorities database received monthly. The administrative data is further completed with our direct data collection inquiries focusing especially on the establishment (local kind of activity unit, LKAU) level and covering all enterprises with multiple establishments.

1.2 The Integrated Business Statistics Production System

As a result of a large revision project, which has been running since 2010, Statistics Finland has in late 2013 implemented a new integrated business statistics production system. Within the revision project, the whole production process from data collection to data publishing was renewed. Revision included harmonization of methods and practices as well as elimination of overlapping work phases within and between different statistical domains.

The integrated system covers all the central business statistics; Business Register, Structural Business and Financial Statement Statistics, Regional Statistics, International Trade in Services, FATS statistics, Commodity (PRODCOM) Statistics and parts of Short Term Statistics. It provides all the statistics with the same data content in order to produce consistent business statistics. Unit structures, as well as classifications (e.g. NACE) and concepts (e.g. turnover) used in several statistics were further harmonized during the revision project.

The system consists of a production database and a data warehouse. Production database is where all the checking, editing and imputation to the data sets of various statistics is done, whereas all the

[1] According to the Statistics Act of Finland (280/2004), certain Business Register variables are public on micro level as well.

statistics are produced from the final stage data stored at the common data warehouse. Data warehouse also serves as an input for several other statistics as well as National Accounts.

Previously, business register as well as other business statistics domains operated on their own separate systems. Although business register was utilized as the main source of the units and as a sampling frame, in some cases parallel unit structures, classifications and characteristics data existed within the different domains. The main idea of the new system is that the existence of parallel data is no more enabled and all the corrections are done in one place and only once.

2 Statistical Units

2.1 Main Statistical Units in the System

The main statistical units in the integrated system are the enterprise (ENT) and the establishment (local kind-of-activity unit, LKAU). All the production is mainly based on these units and thus also the work input and especially manual checking is concentrated on these two units. In practice, enterprises are compiled from legal units (LeU)[2] although the unit model allows splitting of legal units (with the help of establishments) as well. Within the previous system the legal unit equaled the enterprise, where as in the new system implementation of complex enterprise units is allowed. In an anticipation of introducing complex enterprise units in to the production of business register and business statistics, also designated views within the software application are developed to conveniently perform the manual profiling and consolidation of the most significant units.

All legal units received from an administrative source are stored in the system but only active legal units are given an enterprise ID and an establishment with respective relationships and brought to as a part of the Business Register's and Business Statistics' production cycle. Other units in the system are local unit (LU) and enterprise group (EG). The kind-of-activity unit (KAU) will be implemented as well, work on the KAU is taking place at the moment within an EU grant agreement.

As a result of the new integrated business statistics production system, the coverage of Business Register is further expanded. This is due to the fact that also the units with just assets (i.e. no employment and no turnover) are regarded as active. Previously the variables used to indicate activity of a unit were just employment and turnover leading to the fact that some units in the financial sector have fallen outside the scope of the Business Register's coverage as they are pure holdings not having employment or turnover. When being part of an enterprise group, they are nevertheless important in completing the group's ownership structure and thus they have been stored in the enterprise group register database closely connected to the Business Register. This has, however, caused incoherence between the two registers' data contents prior to the present system.

The introduction of a balance sheet based activity criteria has enhanced the coherence with both the enterprise group register data as well as with the SBS data where a balance sheet related criteria has

[2] At the moment, 1 LeU = 1 Ent, but Finland has started profiling exercises in order to implement complex enterprise units in the near future.

already previously been applied. In so, the Business Register coverage also better serves the needs of National Accounts, especially regarding financial sector units.

2.2 Compiling Local Units Methodologically

In the integrated system local units are delineated methodologically based on the data on establishments (local kind-of-activity units) ensuring a full coherence over the two unit types. Previously the local units were a result of manual updating, which was prone to situations of incoherency between the establishment and the local unit level data.

2.2.1 The Methodology in the New System and Comparison to the Previous Situation

The delineation of local units is simply based on the street addresses of establishments under the ownership of a certain enterprise. Additionally, fixed building registry numbers assigned to the establishments are utilized. Local units are only produced to the data warehouse and thus no manual intervention is allowed. Local units are not used as data collection units but they can be utilized for example in sampling or data deliveries.

Compared to the previous system, there is no significant impact on published statistics as the publication has been based on establishments, but the key improvement is in the simplification of unit structures and updating processes. There is prominent improvement in the coherence over the whole population and especially in certain situations between the establishments and local units as well.

Initially, as local units were introduced in to the Business Register, they were created from the establishments methodologically, but afterwards the updating was mainly carried out manually. Nevertheless, there were a few automatic rules implemented in the previous system as well. For example, as the address of an establishment was updated, the system would automatically update the new address as the address of the local unit as well. In case of local units with multiple establishments, this sometimes lead to a situation where addresses were not coherently recorded; local unit had an address which did not match with all of its establishments. An example is illustrated in table 1 below.

LeUID	**LUID**	**LU_street_address**	**LKAUID**	**LKAU_street_address**
0X0XXXX-X	4071242237	Hansakartano 4	708379788	Terveyskuja 2
0X0XXXX-X	4071242237	Hansakartano 4	643593865	Hansakartano 4

Table 1: Different addresses between LKAU and LU

Moreover, some situations lead to unnecessary local units being delineated. For example, when the address of an establishment (and respectively of the local unit) was updated, it could easily be overlooked that there already existed a local unit under the new address. An example is illustrated in table 2, which follows.

LeUID	LUID	LU_street _address	LKAUID	LKAU_street_address
0X0XXXX-0	4000007743	Oritkarintie 6	552092836	Oritkarintie 6
0X0XXXX-0	4000007826	Oritkarintie 6	500208062	Oritkarintie 6

Table 2: Unnecessary local units delineated (within the same street address)

As the concentration of the manual updating was on the main units - the enterprise and the establishment- local units did not get the attention needed to keep the unit structure correctly delineated and their data coherent. Moreover, systematic checking rules or warning notifications to help detect these situations were missing from the previous system.

2.2.2 Challenges of the Methodological Delineation

The fact that the delineation is based on the street addresses of establishments can pose a few challenges.

In case the street address doesn't truly reflect or define the actual location, the delineation does not work properly. An example is a factory area, in which different street addresses exist but which constitutes a continuous area and should thus be considered as one local unit (also according to the EC Regulation 696/93). Here, the building registry number only recognizes the situations, which are situated in the same building; e.g. a building situated in a corner of a street having several street addresses can be recognized as one local unit with a help of a building registry number.

Standardized Euref-FIN (ETRS89) co-ordinates are stored in the Business Register and attached to the establishments as well. The co-ordinates could in principle be used as an additional help in the delineation as well, but as such they do not so easily fit into the definition of 'simple automatic rules'. In so the additional value obtained from their use in the methodological delineation is limited. Moreover, the cases in which the co-ordinates might be helpful in addition to the variables already used are assumed to be marginal and thus probably not worth the additional work.

Another challenge with the street addresses is that in practice, they are not always fully correct or complete. The address might be incomplete, incorrect or even missing altogether. However, the overall coverage and correctness of the street address data in the Finnish Business Register is very high and in problematic cases sometimes the building registry number can still be utilized.

2.3 Integration of Enterprise Group Data

2.3.1 From the Previous to the New System

Within the previous system, although the enterprise group data was closely linked to the Business Register, it was stored in a separate database located in a different server than the rest of the Business Register. Some tables needed to be copied between the servers and the updating procedures were carried out separately. The manual updating of the enterprise group structures and data was done with

a separate software application. The unit structure depicted in the Business Register's software application did not include the enterprise group.

In the new system, the databases have been integrated and their updating procedures are more harmonized. Moreover, the enterprise group is brought to as part of the common software view in so that the full structure of the units in national territory can be viewed at once, which was not possible in the previous system. This enables a better utilization of the data on enterprise groups in profiling as well. A screen capture from the software can be seen in picture 1 below.

Tunnus	TyypNimi		Toimiala	Kunta	Toiminnan AloitusPvm	Toiminnan LopetusPvm	Osoite	Postinumero	Postitoimipaikka
◢ 1005305 (1)	Kn	KESKO EG	NACE	Municipality			Street Address	Zip	Postal location
◢ 1231672355 (1)	Yr	Kespro Oy Ent	46390						
◢ 0911917-1 (23)	Oi	Kespro Oy LeU	46390	Helsinki				00016	KESKO
502361314	Tp	TURUN TUKKU LKAU	46390	Turku			PITKÄMÄENKATU 11	20250	TURKU
502361439	Tp	LAHDEN TUKKU	46390	Lahti			ALHONKATU 4	15610	LAHTI
502361587	Tp	KUOPION TUKKU	46390	Kuopio			TEHDASKATU 14	70620	KUOPIO

Picture 1. Screen view from the shared software application depicting the unit structure with basic information

Nevertheless, the manual updating of the enterprise groups is still done with a separate software application. The application is used to administrate enterprise group level data, relationship data between the group and the group head as well as relationship data between legal units within the group. The non-resident units of the enterprise group are only visible in the separate software. Within the renewal project, the application was amended to include functionalities for the FATS production as well.

2.3.2 Further Challenges

To spread the knowledge and competence on the enterprise groups and their updating rules to a wider group of experts is a challenge to be tackled in the near future. Profiling exercises will cumulate the know-how and offer new possibilities to participate in the updating of the enterprise groups.

As the manual updating is still done with a separate software application, it will impose further challenges as the implementation of complex enterprise units takes place. It needs to be taken care of that as the enterprise group structure is updated, it will trigger a signal to the user to access the application which is used to update the structure of the complex enterprise as well. This will need to be done by the same user within the same session (e.g. block the progress with the enterprise group until the enterprise data is checked). Within the renewal process, it was also foreseen with a possible need to reconsider the integration of the software applications as the enterprise unit is implemented to the Euro Groups Register.

3 Publishing Data on Enterprises and Establishments

Previously Business Register had its own production cycle as well as an annual publication covering the basic data on Finnish enterprises and establishments. Structural Business, Financial Statement and Regional Statistics based its own production on the Business Register's frame population and published within its annual publications partly parallel information. Moreover, in certain situations the information given by the different publications was not fully consistent. For example, case specific differences in

industrial classification, turnover and personnel data as well as in the treatment of enterprise re-organizations (e.g. mergers) existed. The criteria of activity and the delineation rules of the population base, which is taken into account in the publication differed to some extent as well.

Moreover, prior to the renewal, the publication of Structural Business, Financial Statement and Regional Statistics was divided into a total of ten different publications according to the unit level and different industries. This was not an ideal solution for a user interested in gaining a comprehensive picture of the population as the information was spread between different publications.

In the new system, annual data on enterprises and establishments is produced and published only once. There are two publications: i) Structural Business and Financial Statement Statistics (incl. enterprise level data) and ii) Regional statistics on entrepreneurial activity (incl. establishment level data). Both publications contain information from both the Business Register and Structural Business and Financial Statement Statistics with the previous inconsistencies in data content and processes fully harmonized.

The new publication offers its users a more comprehensive and consistent picture of the enterprises and establishments population at once.

4 Concluding

At Statistics Finland, the Business Register has already for long been an important data source and a survey frame for all of the business and economic statistics as well as to a variety of population and social statistics. In addition, data – on aggregated and micro level – is regularly delivered outside to various users and interest groups. Within a revision project during 2010-2013 further integration and harmonization of Business Register with the central Business Statistics was pursued and achieved as an integrated business statistics production system with Business Register as its core was implemented in late 2013. Within the revision project, the whole production process from data collection to data publishing was renewed.

The implementation of an integrated business statistics production system has brought improvements to Business Register quality as the methods and concepts have been harmonized. In addition, an integrated system with its shared databases also ensures that the quality of the database and its content is of a common interest. In so, the integrated system has further facilitated and tightened the co-operation between Business Register and Business and Economic Statistics.

Consistency between Business Register and other Business Statistical outputs and improved user-friendliness of the publications are a clear advantage from having an integrated production system.

Elimination of overlapping work phases in data collection by, e.g. enquiring the turnover only within the SBS survey and utilizing methodological compilation to wider extent has also diminished the response burden and enabled higher consistency between the statistical domains.

The integrated system also provides an opportunity to gain cross-domain expertise beyond just the Business Register. For Business Register, however, there is a demand for maintaining a more extensive selection of variables and for having a wider understanding of the effects of Business Register variables

to other statistics than before. As the system includes several business statistical domains as well as a numerous group of users from other statistics, one challenge is the complexity of the system and various requirements between different domains.

All in all, as there are both advantages and challenges to having an integrated system, finding and maintaining the right balance between them is crucial. Here, one of the most important issues is a close enough and well-functioning co-operation between the domains.