

subject:

Efficient methodology for producing high quality establishment statistics

A motivational model for running a statistical business register

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1. Purposes of a statistical register and parties involved

Registers of different kind traditionally serve statisticians as means to generate survey frames. From this basic function statistical registers have been developed which offer assistance for different steps of the statistical production process. This paper focusses register work with regard to the German statistical business register. The analysis should hold for other comparable statistical registers as well. Modern business statistics in many statistical systems rely on a statistical business register as an infrastructural, conceptual and methodological backbone. This puts the statistical business register in a most responsible position:

- It shall contain all relevant statistical units and all relations between these units.
- It shall serve as frame for statistical surveys (for coherent sampling and extrapolation).
- It shall be a tool to acquire, combine and connect existing data (minimized response burden).
- It shall be an assisting instrument for the statisticians in every phase of the production process of business statistics.

Whereas this kind of description of the purposes of a statistical business register is quite commonly found, the way such a register can be built up and run often remains vague or is not tackled at all. In practice, for running and improving the statistical business register methods and applications are being developed to meet the growing demands of the statistical users:

- methods to assess the quality of register sources,
- model based estimation and imputation methods for variables of poor quality or not available in register sources,
- methods to combine information for identical units from different sources,
- quality indicators that allow optimal use of the register information.

Commonly – even if not tackled explicitly – there is an underlying idea of „producers“ of the statistical register and of „consumers“ of register information.

2. The producer side of a statistical register

In Germany, producer of the statistical register is a specialized department within the statistical office where people are occupied with collecting data from different sources and feeding it into a data bank which should

- contain most - or hopefully all - economically relevant statistical units
- show relations between units, e.g. which local units belong to the same enterprise, which enterprises form an enterprise group,

- provide a certain set of variables which describe basic features of the statistical units and therefore are appropriate to assist the statisticians when they have to identify survey frames,
- provide a set of identification numbers which allow to connect and combine information about statistical units that is stored in decentralized data bases,
- comply with the commonly known statistical quality requirements, such as actuality, accuracy, completeness, etc.,
- provide a set of quality indicators which describe the quality of the register information,
- provide a set of quality indicators on a second, meta level of quality indication which describe the status of register work and therefore allow to choose the „right time“ to take use of the register,
- be accompanied with metadata that describe the content of the register information.

Obviously this puts a high workload on the register department. Due to restricted resources, in practice register information will be not complete, not of homogeneous quality, not perfectly accompanied with metadata and descriptions of the work processes and quality indicators, or the latter ones will show the shortcomings. Practical register work is constrained optimisation by setting (hopefully the appropriate) priorities. Since the register serves many purposes and many parties are involved, the priorities have much to do with the assertiveness and relative power of the different users.

3. The consumer side of a statistical register

Users of register information are the statistical branches in the statistical office. According to the wide range of statistics produced by official statistics, the attention of each user is turned to some extracts of the register information only. This may be a certain economic sector, specific size classes of statistical units, some special variables about these units, to mention a few. As regards quality, timeliness may be most relevant for short term statistics, completeness for structural surveys, cross reference to a special external data base for a third purpose. All in all, the demands are heterogeneous.

For some users assistance of the register is sought for just for one step in the production process, most commonly sample design and gathering of addresses. Sometimes this remains the one and only contact with the register. Afterwards, surveying, checking and processing of the data, imputation of non response, expansion and publications is done without any further collaboration with the register. The result may be statistical data with basic figures that do not fit with results generated by the register. No matter „who is right“, the fact that inconsistencies are produced and sometimes adamantly defended is a disappointment for the statistical office.

Not a few users have realised that a statistical business register is more than an address file and that it can be employed in all phases of the statistical production process, namely the conception phase, the acquirement of input data, followed by editing (checking and processing) phase, the analytical work to generate statistical results and, at the end, the publication and consulting of the recipients of statistics. The useful assistance by the register can belong to all of these production steps (Sturm 2008).

4. The co-operation approach

A coherent description of an integrated system for business statistics production which contains a statistical business register cannot treat the latter as exogenous (“given”). Decisive questions are:

- What data sources feed a statistical register?
- What mechanisms harmonise the statistical register with the needs of its users?
- Who is contributing to the running of a statistical register and by what motivation?
- How can the efficient running of a statistical register be organised?

The motivational model aims to define optimal work-share for the maintenance of a register by utilising the self-interest of all parties involved. This approach thereby replaces the commonly found roles of „producers“ and “consumers“ of register information by an approach of co-operation for efficiently running a statistical business register.

The basic idea is that manifold use of the register is an efficient way to make sure that an eye is kept on quality of the register, sometimes even the only way to detect deficiencies. The awareness of this fact must sometimes be raised at the producer side as well as at the consumer side.

- Producers of register information should understand that deficiencies detected by users are worthful information to do better. Observation of quality aside from actual use is a hard job. Real use provides with the most relevant quality indicators. Users' findings on lacks and gaps is not criticism but should be welcomed.
- Consumers of the register have to bear in mind that register people do a hard job even if they do not offer the perfect register information. Deficiencies in register information is not a proof that the register is of little value but is a necessary contribution that should be presented in a way that is helpful to do better.

The motivational approach therefore aims to overcome the sometimes visible „who is to blame“ by „who can contribute to make things better“. To achieve this, the strengts of the parties involved have to be identified and coordinated.

5. Strengths of the users of the register

As described in section 3 the attention of many users is focussed on some special aspects the register only. Each user needs good quality of the register information for the aspects relevant for him. If there would not be a register, the users would be willing to invest considerably in gathering this information themselves. Since there is a register, best contribution of these users is to engage in the maintenance of the information especially relevant for them.

- The special interest may be the reference to a special external data base. An example in the German context is the maintenance of the feature of ‚crafts enterprises‘ – awarded by the Chamber of Crafts and codified in the guild roll (skilled trade register). This feature is held in the German statistical business register since a couple of statistics are presented including this feature. The section in the statistical office which is occupied with the core of the statistics about craftsmanship engages in the yearly processing of the guild roll information in the statistical business register.
- New information for the register comes from the surveys run by the users of register information: Prominent examples are changes in names and adresses and changes in the structure and relation between statistical units in the register: enterprise splitting up in two, the acquisition of another local unit by an enterrise, the closing down of a company, to name but a few.
- Some variables that are collected by statistical surveys are worthy to be stored in the statistical register as well since they give basic information about the statistical units in the register such as employment and turnover. When this information is gathered by the business register from administrative sources it is restricted to the definitions and availability of these sources. For statistical purposes the definitions used in surveys as well as their coverage give better or additional information which surveys can contribute without much effort to the register.

6. Strengths of the register department

- The big administrative sources such as labour administration and tax administration build the basis for a statistical business register. The input needed to handle and exhaustively process these data sources every year, every month or even permanantly cannot be bourne by single statistical users. The register department provides this information via the register for many users and therefore is the position to realise economies of scale and produce a public good within the statistical system.
- There are basic quality requirements for register information which are important for many users: Completeness of coverage, homogeneous time-stamps, appliance of common definitions and the treatment of comparable cases in a comparable manner are some of them. It is a task of the register departments to care about this.

- Quality indicators have to be set up and provided on regular or permanent basis to give users a good insight in the data they intend to use.
- Metadata which describes the content of the information in the register have to be set up and made easily available. Metadata goes hand in hand with quality indicators. Not only is there metadata like definitions of variables, source indication etc, but also description of the mode of processing of the data and the status of register work.
- To become a specialist in „the way the register works“ means to gather knowledge about many aspects and details of processes, partners, definitions, conventions and so on. To become such a specialist can take a person some years. This deep knowledge has to be provided to users as guidance and consulting service and by this helps them to employ the register information adequately.
- In the co-operative approach many parties are involved in the maintenance of a good register. These parties have to be motivated to participate and coordinated. Communication has to be established and channelled. In the German case, a set of rules, formulated by the register department in cooperation with users, has been established to promote this.

7. Conclusions

The motivational model intends to employ the self interest of all parties involved in register work to build up and maintain the statistical register. Not only should the outcome be a register of a kind that offers best revenue. The approach also intends to be the way to find out what would be the best revenue that can be achieved.

The parties commonly seen as the users of the register by this approach will also come into play as contributors to the maintenance of the register. The motivation to do so should be the value added that they can gain from the public good aspects of the register combined with the value added coming from the combination of the data they contribute with the data contributed by other users. In fact, as far as consumers are concerned, the role of „user“ and „producer“ of register information by this approach is being merged.

The existence of a register department derives from the fact that a statistical register is useful for the statistical departments of the office – this is its *raison d'être*. The jobs of the register people are save if they provide an infrastructure that the rest of the office wouldn't like to miss. A way to make sure that they will not like to miss it is to offer what people need. To find out what they need and to make them contribute to the system is a task in itself. The motivational approach should help to attain this goal.

8. References

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