



**Economic and Social
Council**

Distr.
GENERAL

ECE/CES/2009/36
5 May 2009

ENGLISH ONLY

ECONOMIC COMMISSION FOR EUROPE

STATISTICAL COMMISSION

CONFERENCE OF EUROPEAN STATISTICIANS

Fifty-seventh plenary session
Geneva, 8-10 June 2009
Item 4 of the provisional agenda

SEMINAR ON STRATEGIC ISSUES IN BUSINESS STATISTICS

SESSION I: REDUCING RESPONDENT BURDEN

A QUALITY CONCEPT FOR BUSINESS STATISTICS

Note by the Federal Statistical Office of Germany

I. INTRODUCTION AND OVERVIEW

1. Official business statistics has to meet several challenges. By the development of the “information society”, the conditions for the production of official statistics have changed rapidly. In addition, official statistics also faces a growing demand for high quality statistical data as well as a higher degree of flexibility to react rapidly to changing user needs. Unfortunately at the same time there is an increasing political pressure to reduce burden on enterprises that are the original source of information. In Germany all this takes place against the background of diminishing resources in the statistical offices. Therefore, official business statistics is asked to find a new concept to meet the challenges mentioned above.

2. A study was conducted by an external institution (DIW) to measure the burden on enterprises caused by official statistics. One main result was that the burden perceived by the

enterprises seems to be much higher than the burden measured.¹ The measurement of cost and burden made by the Standard Cost Model showed that official statistics in Germany is only responsible for about 0.7% of the bureaucratic burden on enterprises.² However, the political discussion about disburdenment is going on. During the last two years there were several national regulations to disburden especially the Small and Medium Enterprises (SME). At the beginning of 2009 there was an initiative of the European Commission for better regulations where additional proposals for a burden reduction in business statistics were made. Unfortunately, none of the proposals for burden reduction included a reference to the quality of the figures official statistics is expected to produce. Implicitly it seems to be assumed that all the proposed measures do not have any effect on the quality of the figures.

3. One main topic of this session is that the new requirements for business statistics do not necessarily contradict the burden reduction for enterprises. The key issue is the transition to new or better data collection methods such as e.g. the extensive use of administrative data, modern electronic methods of data extraction from the accountancy systems of enterprises, and electronic data transmission to the statistical offices. Whether these changes turn out to be an improvement strongly depends on what is expected as an output of the system of business statistics. This is essentially a quality issue. The possible use of administrative data implies that the quality of data depends among others on the equivalence of units and definitions between administrative data and business statistics. The implementation of modern extraction methods depends on the availability of the requested characteristics in the accountancy systems. These aspects show that the implementation of these techniques is not a simple moving of the lever but has to be prepared carefully by creating and testing the appropriate preconditions.

4. In Germany there is an agreement that a more systematic approach is necessary. The first aim is to create a coherent output oriented system of enterprise statistics. At the beginning of the design of the new system we have to draw our attention to an overall quality concept of that system. The state of that discussion in Germany and some conclusions will be presented below.

II. MEASURES TO REDUCE BURDEN ON BUSINESSES IN GERMANY

5. In order to reduce the burden on businesses and to save resources in the statistical offices, there were several clearing rounds since the early eighties. Savings by the reduction of single variables have turned out to be quite small and hard to reach. In fact, the political compromises reached often resulted in very dubious savings. Different user interests considerably restrict priority setting.

6. Various laws to reduce the burden on small businesses focussing on data collection methods seem to be more effective. The main effects of these laws were:

(a) According to the first law to reduce burden on small businesses in 2005, the reporting threshold for Short Term Statistics (STS) in industry was lifted from 20 to 50 persons employed. The result was that 24 000 units (about 50%) were released from duty to give information. For the global aggregates and a majority of divisions of NACE-codes one can

¹ DIW (2004): Die Bedeutung der Belastung der Wirtschaft durch amtliche Statistiken, p.32

² Press release No.148 from 16.04.2009 by Destatis

consider that there is no severe loss of information. Concerning the rates of change and the developing of indices no major divergence could be assessed;

(b) By the second law to reduce the burden on small businesses in 2007, the so-called “mix model” was introduced for STS in the service sector. The reporting threshold for the survey was lifted up to 250 employees, respectively 15 Million Euro turnover. 33 000 units were released from duty to give information by this action and by using administrative data. Only about 4000 units are still in a survey. The time series do not show any breaks despite the change of the methods. The goals to reduce the burden on respondents and to give an appropriate description of the service sector could be reached;

(c) According to the third law to reduce burden on small businesses, the handicraft survey was completely replaced by the use of administrative data. About 41 000 businesses (mainly small and medium enterprises) could be released from the obligation to give information by this measure.

7. Efforts are also undertaken at the European level to reduce burden on businesses. A communication from the European Commission contains the following proposal:

“The Member States are invited to: make sure that a micro-business is not asked to participate in a statistical survey under the responsibility of the state, regional or local statistical office more than once every three years, provided that the needs for statistical and other types of information do not require otherwise.”³

8. Although several individual measures of burden reduction for businesses have been initiated and already implemented, an end to the discussions seems not to be in sight.

9. Unfortunately:

(a) the individual proposals from different sides could come into conflict with and impede each other;

(b) the effects of uncoordinated reduction proposals on the quality of the statistical mapping of economic reality are often neglected;

(c) the measures are not neutral towards the efforts within the statistical offices themselves; and

(d) the reduction of burden and new requirements are often treated separately although they could be two sides of the same coin (possible trade-off between both)⁴.

³ Communication from the Commission (COM (2008) 394 final): “Think Small First” - A “Small Business Act” for Europe, p.9

⁴ This contradiction can be recognized in the survey of “access to finance” in the context of the so called “ad hoc module” in the Structural Business Statistics (SBS) regulation. This survey is mainly geared towards small units.

10. Therefore, further progress can only be reached by a more fundamental and systematic approach. Up to now all plans and actions for burden reduction were more-or-less isolated initiatives in one sector or another, focussed on special surveys and only on the reduction of burden for businesses. Those isolated measures pose the threat that the different jigsaw pieces of the picture of the total economy do not fit together. From the perspective of the total picture, statistics tries to describe the situation of the whole economy and its latest developments. In our view it is the first task of official business statistics to present a set of basic statistical facts about the economic situation where all sectors of the market economy should be represented according to their economic importance. This core of basic statistical results should be of transparent quality which could be taken as a starting point for supplementary questions arising in the course of time. Therefore we should be able to guarantee a certain pre-defined quality for this set of basic statistical results.

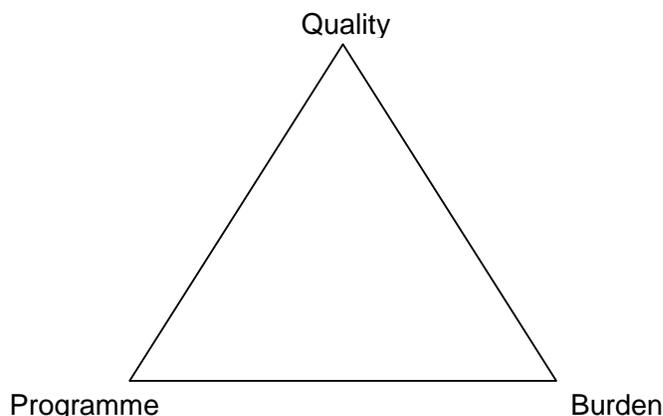
III. A MORE SYSTEMATIC APPROACH

11. Business statistics in Germany consisted so far of different systems for manufacturing, trade and the service sector. These statistics have been developed independently in different periods of time and under different external conditions. The relations between the different sector statistics are not very pronounced and the results of these sector specific statistics are difficult to compare especially regarding data quality. The crucial disadvantage of isolated selective corrections in one sector is that the picture of economic reality loses coherence and becomes disproportionate. Although e.g. the service sector is of growing economic importance, the results presented for this sector are much less detailed than for the manufacturing sector.

12. Another important aspect in this context: as mentioned above the public discussion on burden reduction for enterprises, on reduction of costs in the public sector and on new or different data requirements takes place on different and often separated fields. But it has to be taken into account that output quality, adjustments of the statistical programme and burden reduction (for respondents and/or the resources required from the statistical institutes) influence one another. This could be pictured as a magic triangle (Figure 1) where official statistics has to find its position.

Figure 1:

The magic triangle



13. There is a postulation that business statistics should take into account new data requirements, reduce the burden on enterprises and improve the data quality at the same time. This sounds very much alike the so called “Minimax problem”, which can only be solved if we had not been producing our results efficiently in the past or if former (legal and/or institutional) restrictions are no longer binding. Rational planning requires clear targets. In the redesign of business statistics we actually have to solve a kind of optimizing problem and we have to decide what is the target and which are the restrictions. Do we want to improve output quality for a given programme and given resource restrictions? Do we want to save resources given a certain statistical programme and certain quality requirements? Or do we want to extend the programme with given resources and fixed quality thresholds? Each approach will lead to different solutions.

14. Due to the reasons mentioned above, a systematic and more complex approach is needed that regards business statistics as an integrated system of data production where burden reduction is one component within a complex target system. Therefore in Germany a project called “Reform of business statistics” has been started which tries to integrate all the aspects mentioned above. The ultimate aim is a coherent system of output-oriented business statistics where a comprehensive quality concept plays a decisive role.

15. Planning or renovating a system of business statistics is a very complex process. We started our project work by establishing a number of targets and guidelines along which our system of business statistics has to be developed:

16. First of all, the re-design should lead to a changeover from a so called stove pipe (input oriented) approach to an explicit system design where all sectors of the economy are integrated. Since data requirements are changing more often than in the past, the system should also offer a certain degree of flexibility. The desired properties of an output oriented system of enterprise statistics can be described as follows:

(a) Enterprise statistics should be a coherent system covering all sectors of the economy according to their economic importance. The statistical results of the different sectors should be comparable to one another;

(b) The system should be output oriented; that means that the it should be possible to combine the produced data to a maximum extent for statistical purposes;

(c) It should be quality oriented in the sense that its output follows the quality guidelines of the European Union Code of Practice⁵;

(d) It should be register-oriented which means that the business register is the central monitoring instrument for data collections (definition of populations, surveys, sampling procedures, statistical expansions, evaluations etc.);

⁵ Regulation (EC) No 223/2009 of the European Parliament and of the Council of 11 March 2009 on European statistics and repealing Regulation (EC, Euratom) No 1101/2008 of the European Parliament and of the Council on the transmission of data subject to statistical confidentiality to the Statistical Office of the European Communities, Council Regulation (EC) No 322/97 on Community Statistics, and Council Decision 89/382/EEC, Euratom establishing a Committee on the Statistical Programmes of the European Communities, OJ L 87, p. 164-173

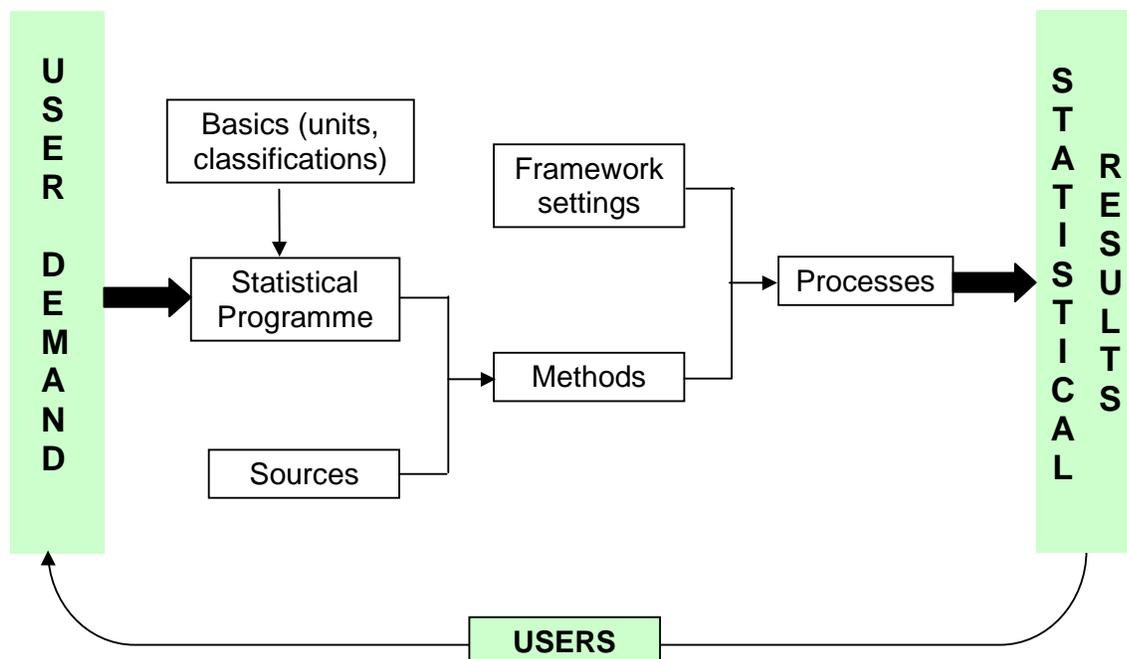
(e) Data collection for the whole system of enterprise statistics should impose a minimum burden upon the enterprises and use resources efficiently. The aim should be an efficient mix of sources and methods. This means:

- (i) The use of available administrative data has first priority whenever possible;
- (ii) Primary surveys should only be considered as last resort;
- (iii) Primary surveys should be guided by data availability (in the accountancy records of the enterprises) and not primarily by the theoretically correct statistical definition;
- (iv) Respondents should be offered tools for automatic extraction of statistically relevant data from their (standardised) accounting systems;
- (v) The statistical offices are responsible for transforming the data collected into the correct delimitation by appropriate imputation or estimation methods;

(f) There should be a centralised and unique data storage (reference database) which is the basis for all statistical evaluations.

Figure 2:

A new statistical working system



17. A statistical working system has to take into account the following elements (Figure 2):

(a) The programme to be fulfilled (units, variables, periodicities, geographical and functional breakdowns, tabulations);

(b) The methods used for data collection and the production of the results (the toolbox of the statistician); and

(c) Processes of production which are organised and applied to carry out the methodological approach.

18. All this takes place within an institutional framework setting (federalism, statistical legislation etc.) whose importance should not be underestimated and which can only be changed in the medium or long run. Within the redesign of the system of business statistics programme requirements, selection of methods and the arrangement of production processes are interdependent. Starting from the requirements to the system of business statistics we have to select the most efficient mix of methods under certain restrictions and assemble these methods within production processes. Following the arguments described above we started with the requirements regarding the programme. Then we tried to define the expected results of our system of business statistics.

19. From the guidelines mentioned above we can see that quality orientation plays a prominent role. We felt that a comprehensive quality concept is needed which transforms the above mentioned targets and guidelines to a more practical level. The comprehensive quality concept will be the basis for the evaluation of the quality implications of the proposals for changes in the system of business statistics.

IV. A QUALITY CONCEPT FOR BUSINESS STATISTICS

20. A comprehensive quality concept for business statistics describes how we tried to tackle the quality issue within a system and how we try to evaluate the quality of this system of statistics. We start with some remarks on the complexity of the quality issue itself.

21. Quality is an important issue in official statistics. Transparency regarding the quality of statistical results is one of the basic elements for the confidence in statistical figures. Therefore quality standards play a prominent role in official statistics at the European level as well as at the national level. They are laid down in the EU Code of Practice and they have received a legal status within the new European Statistical Law which came into force recently. But quality is a very complex, complicated and multi-dimensional concept.

22. A very simple definition of “quality” is ‘fitness for use’ in terms of user needs.⁶ In this case quality is only defined as a characteristic of the statistical results. Quality assurance in the sense of better user orientation means first of all devoting more attention to the requirements of the user than this has been the case so far. But this is only one aspect of the comprehensive quality

⁶ Radermacher, W., Weisbrod, J., Asef, D.: „Demand, quality, burden: optimization to balance interests”, 90th DGINS CONFERENCE, Paris, 13-14 September 2004, p. 3.

concept we have in mind. The others are quality aspects of the methods applied and quality aspects of the production process of statistics itself.

23. Three remarks should be made here:

(a) The Code of Practice asks for transparency regarding output quality. It is an agreement upon the criteria which are to be used for the evaluation of the quality of statistics. It does not prescribe quality levels of the results of special statistics. The priorities among the different quality criteria essentially depend on the use of the figures and on the user itself. Unfortunately most of the users are not very precise regarding their quality requirements and “the user” consists of many subgroups with rather heterogeneous interests and priorities;

(b) The Code of Practice only reflects the output itself and not the methods used and the production processes. Given the public discussions about burden reduction on enterprises and resource reduction in the statistical offices an overall quality concept should also give us criteria to evaluate the quality from the input side;

(c) Regarding business statistics we are dealing with a statistical system normally consisting of a mix of methods and sources and it is one of the difficult tasks of our project to define how the quality of the total system of business statistics could be evaluated and how to tackle this question within an interdependent system of surveys and other data collection methods.

24. In our view a comprehensive quality concept has to comprise different sub-concepts of quality, namely

(a) A quality concept for the programme of business statistics;

(b) A quality concept for the methods used; and

(c) A quality concept for the production processes where the methods are applied.

25. Of course all three concepts are interrelated. Certain programme requirements could only be fulfilled by a limited set of methods and the successful application of certain methods requires certain features of the production processes. But in our process of system analysis and system renovation we had to start somewhere. Obviously we started with the quality concept of the programme and tried to formulate the quality requirements for a system of business statistics.

26. The programme of business statistics is defined as the output of the system, i.e. the amount of statistical results. This includes the population (economic sector and statistical units), as well as the statistical variables that need to be provided by the system in specified periodicities, at determined points in time, in predefined categories (regional / economic breakdown). The criteria to measure the quality of the programme according to the Code of Practice are relevance, coherence, consistency, accuracy, timeliness and punctuality, as well as availability and transparency.

27. Relevance is the first priority criterion for a statistical programme. Yet, in the light of different user demands and scarce resources the statistical institutes are forced to define their focus and weight the different users. The relevance of the programme is determined by the degree to which the demand of the main users is satisfied.

28. Coherence receives a much higher priority in the context of a system than for single statistics. In our eyes the code of practice does not suffice at this point. Therefore we decided to differentiate between the terms coherence and consistency. These two attributes are used, but not distinguished in a lot of manifests, like the European Code of Practice⁷ or the Quality Standards in German Official Statistics⁸. In order to find pragmatic approaches to these questions we define coherence as the comparability of different sector-statistics and consistency as the direct numerical comparability of statistical results on identical items of the same population. Using these definitions, coherence of the programme applies to its major descriptive elements, namely the list of variables, definitions, statistical units, and periodicities as well as the levels of regional and subject-related breakdowns. If coherence is provided for these aspects, it is easily possible to combine data of the various sectors for macroeconomic analysis.

29. Consistency on the other hand is a very obvious or easily recognisable criterion for the output quality of a statistical system. If the cumulated results of short term statistics say the economy has been growing during a reporting year but the structural business statistics publish smaller numbers than in the previous year user confidence will suffer. Even though the different methods applied will never lead to the same results at least the trend should show the same direction. Inconsistencies may have various reasons like different sources (primary vs. secondary data), different methods of data collection (cut-off census vs. sample), different statistical units, differences in time of publication of the results (flash estimations vs. revisions) or methodological improvements that cause breaks in time series. But the published data on one item should be free of contradictions and remaining inconsistencies should at least be communicated proactively. Also for every fact only one result should be released. These aspects measure the score in consistency.

30. The accuracy of statistical results describes the probable deviation between the released data and the true magnitude. Since a mix of methods (primary surveys, administrative data and estimations) prevents cross-sector accuracy standards, at least equal methods should provide comparable quality. Additionally the user should always be aware of the accuracy of the data. Therefore standardised quality reports must be provided.

31. Timeliness is concerning the delay between the reference period and the publication, while punctuality is concerning the delay between the scheduled release date and the actual delivery of the data.

⁷ COM (2005) 217: Communication from the Commission to the European Parliament and to the Council on the independence, integrity and accountability of the National and Community Statistical Authorities

⁸ Statistische Ämter des Bundes und der Länder: „Quality Standards in German Official Statistics“, Wiesbaden 2005

32. If a programme is judged by the above mentioned criteria, the methods to fulfil the programme become the centre of attention. These need to be, first of all, adequate to the programme and appropriate in the respective framework setting.
33. To prove this, transparency regarding the methods applied must be ensured. This could be arranged, for example, along with information about the accuracy of the programme in standardised quality reports.
34. To achieve coherence of the system, also the methods should be comparable to a maximum extent, even though of course the potential for harmonisation depends upon the respective situation in each sector. But within equal framework settings equal methods should be applied. Furthermore, the methods must be appropriate to each other. This means that second choice data collection methods which were chosen due to certain restrictions might require second choice methods in later production steps, where the restrictions are not directly present anymore.
35. A last general criterion for the choice of methods is the demand of resources and burden. Within a certain choice of methods the decision should be made considering the cost for its application and the burden on respondents caused by this method. The cost/burden criterion points towards the use of already collected data (from administrative sources). Yet, if we want to guarantee a certain quality then we have to look for a mix of methods which allows us to give this guarantee. The increased use of administrative data for instance means that we face problems in judging the quality of the data (units, NACE Class assignment, definitions etc.). Furthermore we are no longer the master of the process and this could seriously affect timeliness. We therefore have to find criteria for the suitability of the methods with respect to certain output quality requirements.
36. The result of these aspects is a tendency towards a mix of methods. The combination of administrative data and primary surveys (mix-model) for example might be considered as a low-burden method that is adequate to the accuracy demand of the programme.
37. This leads us directly to the processes. These have to be arranged in order to achieve maximum efficiency. Since the processes are still organised in very heterogenic ways, best practice examples must be identified and implemented in comparable situations to support the standardisation of the system. This could be centralisation of complete statistics or single steps of the process. Since this means questioning the current framework settings at some crucial points, the project is adjusted for a long-term planning horizon. Of course, once the new standards are implemented, they must be questioned regularly and constant improvements must be monitored.
38. All these criteria taken together provide a good measure for the output quality of a statistical system. Having established ways to quantify the quality, the next step should be to define thresholds of acceptable quality, which would enable the statistical institutes to assess their demand of resources in relation to the acceptable burden on respondents. As long as these thresholds are not defined but the programme is fixed and the resources/burden continue to be under pressure, naturally the quality is treated as the variable in the magic triangle.

V. CONCLUSIONS

39. In the past, the German Federal Statistical Office has implemented many single measures to reduce the burden on respondents. Further reduction without reducing quality is only possible by restructuring the system of business statistics itself. A system of business statistics should provide a balanced picture of economic structures as well as short-term-developments across all sectors.

40. The quality criteria are partly described in the EU Code of Practice. However coherence in the definition presented above receives a higher priority in the context of a systematic approach.

41. Even though burden reduction and new data requirements are always treated separately in the public discussion, every measure influences both criteria. Furthermore, actions taken to adjust the programme will always have an impact on quality aspects and uncoordinated single measures may pose a serious threat to the coherence of the system. If the system is to be kept relevant and coherent, every approach towards an adjustment should be considered from the system point of view.

42. In our experience it is rarely the case that a primary census can be completely substituted by secondary data. Almost in every case a certain proportion of primary data has to be used to complement the administrative sources. This shows that the methods follow the demand of quality, which often results in a mix of methods.

43. Of course adjusting the current patchwork of sector specific statistics to a coherent and output-oriented system with a mix of methods will require several years of planning, testing and implementing. To ensure that this investment pays off and the effort is not undermined by a sudden change of availability of the secondary data, the statistical institutes need to be involved or at least have a voice if administrative agencies/authorities are planning to adjust their catalogue of variables, definitions or observation units. If that is not provided, the quality of the statistical results cannot be guaranteed in the long run. This topic shows that the targets of a reform project depend on the planning horizon. A completely harmonized, coherent and output-oriented system is only possible, if the current framework settings are allowed to be questioned.

44. The statistical institutes are challenged to balance new data requirements and burden on respondents. To accomplish this also in the future, the system needs to be flexible and able to react to new developments.

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