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**SEMINAR ON INCREASING THE EFFICIENCY AND PRODUCTIVITY
OF STATISTICAL OFFICES
SESSION II**

Increasing the efficiency and productivity in a small statistical office¹

Submitted by Statistics Iceland

Summary

In a small national statistical institute the demand for official statistics will invariably be greater than corresponds to the production capacity of the institution. Hence, there is a constant need to seek efficiency and productivity gains while striving to uphold or even enhance the quality of the statistical processes. This paper discusses some of the strains faced by small national statistical institutes (NSIs) and accounts for some policies and actions taken at Statistics Iceland to increase the production and efficiency of the institution. The paper argues that Statistics Iceland has realized important gains in this respect by following consistent policies over time in some key areas. The main sources of efficiency gains, it is argued here, involve centralising the official statistical activities, utilising registers and administrative records for statistical purposes, deploying electronic data collection in direct surveys, applying a uniform IT-platform within the institution and streamlining the dissemination system. Finally, the insistence on recruiting well-educated, mostly university-educated staff is thought to have been of great importance.

¹ This paper has been prepared at the invitation of the secretariat.

I. THE SPECIAL NEED FOR EFFICIENCY IN A SMALL NSI

1. Iceland is a country with a very small population (0.3 million) and hence with a very small National Statistical Institute. The number of staff at Statistics Iceland is around 80 not counting interviewers. Besides its membership of the United Nations, Iceland is a member of the European Economic Area (EEA) comprising the EU and EFTA member states and through that an active partner in the statistical cooperation of these states, the so-called European Statistical System (ESS). The participation in the EU cooperation as well as the obligations stemming from the membership of the UN and its affiliated institutions, not least the International Monetary Fund, involves both large and specific obligations for data deliveries to these multinational fora. While the demand for data and statistics from Statistics Iceland is nowadays largely generated by the European and international cooperation, it also reflects the perceived needs of domestic users and their ever growing interest in bilateral or international comparison and benchmarking.

2. The demand for statistics faced by Statistics Iceland is in many ways greater than is commensurate with the size of the Icelandic society and economy, let alone the size of the institution. Thus, the demand originating in the international cooperation is very much characterized by the following features as regards data collection and statistics generation:

- (a) the number of subject matters for enquiry and the number of surveys demanded is inordinately large;
- (b) the frequency of surveys will often be much greater than can be easily be justified by cost and human resource considerations, particularly when viewed against the marginal additional information obtained in each survey round;
- (c) owing to the need for relatively large representative samples, the cost of the data collection in traditional sample surveys will be relatively much greater in a small country than in a large one;
- (d) the level of detail demanded is often greater than is easily obtainable from the relatively small economic actors in the small economies.

3. For all these reasons it is of utmost importance that the policies and the practices of very small NSIs like the Icelandic one are constantly guided by considerations of efficiency.

4. This paper discusses a few policies and actions carried out at Statistics Iceland and in the Icelandic system of official statistics, past and present, for increasing the efficiency of the statistical work. This discussion is by no means complete nor can anything definite be said about the wider applicability of the methods and solutions tried in the Icelandic setting. It should also be born in mind that in this context the term efficiency may apply more or less equally to quality; increasing efficiency is more often than not concerned with the overall outcome of the data collection and statistical processes in terms of both producing more with fixed or less resources and realising quality gains with fixed or reduced uses of resources.

II. CENTRALISING THE OFFICIAL STATISTICS

5. Two decades ago, Icelandic official statistics were quite decentralised. Statistics Iceland was the central statistical office but substantial parts of the official statistics were produced elsewhere. This was the case with national accounts, fisheries and agricultural statistics, education statistics, important aspects of labour market statistics, parts of government finance

statistics as well as statistics on health and education. While Statistics Iceland was charged with powers of coordination and leadership, it was clear that the very thin spread of the human and financial resources between the different institutions engaged in statistical activities gave rise to substantial inefficiencies. These took for instance the form of duplication of work and some misguided competition rather than cooperation. But the main reason for inefficiencies was probably that, with the exception of Statistics Iceland, the institutions involved did not have official statistics as their main role but rather as secondary activities supporting other responsibilities. This had, among other things, the effect that neither economies of scale nor of specialization were realized in the system as a whole.

6. Starting in the late 1980's, most of the decentralized activities have been merged with the activities of Statistics Iceland. The first transfers of activities involved health and social security statistics. These were followed a few years later by educational statistics and fisheries statistics. National accounts and central government sector accounts were merged with related activities of Statistics Iceland in 2002 and wage statistics in 2004. The last act of centralization of statistical responsibilities is ongoing, involving the transfer of the statistics of foreign trade in services from the Central Bank of Iceland to Statistics Iceland. These changes have in some instances come about at the request of the relevant institutions themselves and in others as a result of decisions by the government. In some cases the transfers of activities have required legislative changes and in all instances the transfers have been confirmed by changes in the central government budget. The largest transfers have involved moving human resources along with the activities.

7. As a result of these changes, the system of official statistics in Iceland has become quite centralized. It is commonly recognized that the process of centralization has brought large gains in coverage, efficiency and quality. Some of these gains may of course be attributable to the changes as such since the resources involved, both human and financial, had to be redeployed in a new setting. Such gains would, however, only be short-lived without more substantial changes taking place at the same time. The main lasting gains from the centralisation are considered to be the following:

- (a) the coverage of the official statistics has become larger and more comprehensive than before. This is the result of the increased clarity of responsibilities for the statistical production in the various areas;
- (b) the activities transferred to Statistics Iceland were merged with and aligned to the existing framework and infrastructure of the institution. In many cases this involved merging the data collection to the central data collection system or procedures deployed at Statistics Iceland. Furthermore, methodologies have been revised and harmonised, common European or international classifications been applied and standard good practices of NSIs been introduced, such as on data security and confidentiality, transparency of both processes and practices, the application of pre-release calendars and pre-scheduled publication dates of both outcomes and revisions;
- (c) major gains in both efficiency and in quality have been realised through the application of the common system of dissemination, in particular after the development of web-based dissemination policies;
- (d) one of the main conclusions of the transfer of activities and human resources to Statistics Iceland is that this has raised the professional standard and competence of

- the staff, both existing and transferred. The new staff have had to learn and apply established practices of official statistics while they have in many instances brought with them subject matter knowledge which the old staff were less familiar with;
- (e) finally, though perhaps not a main issue, international representation of a centralised system of official statistics is much more focused and efficient than that of a decentralised system.

III. UTILISING REGISTERS AND ADMINISTRATIVE RECORDS

8. Iceland is one of the countries where there is a tradition for maximum utilisation of administrative records and registers for statistical purposes. This practice is of enormous importance for the coverage and the efficiency of the statistical production in a small society like the Icelandic one for the simple reason that without the access to such source data, the data collection activities would in many instances be prohibitively expensive.
9. There are of course several preconditions for these practices such as the following:
- (a) there must be ample administrative records and registers of high quality available for statistical exploitation. In particular it must be ensured that these are maintained on a continuous basis or with sufficient regularity to keep them both up to date and relevant for both the administrative and the statistical uses;
 - (b) the utilisation of administrative records and registers must be accepted as a natural and efficient way of collecting data, relieving businesses and households from the burden they would otherwise have to bear of supplying data themselves through direct surveys;
 - (c) the central statistical authorities must be authorised in law to make use of and influence the content of administrative registers for statistical purposes;
 - (d) the laws pertaining to the collection and processing of administrative data should recognise and prescribe their use for statistical purposes by the central statistical authority;
 - (e) there must be full recognition by the administrations supplying the administrative records and maintaining the administrative registers of the use of these for statistical purposes and their duties in that respect. For instance, the coordination with statistical authorities must be observed;
 - (f) all the normal confidentiality considerations must be observed fully and systematically; in fact it can be maintained that it is in many ways easier to deal with confidentiality in comprehensive registers than in sample surveys.
10. As is often pointed out in the debate on this subject, the register data need to be controlled, checked and edited in much the same ways as applies to sample survey data. For this purpose, specific procedures have to be designed and applied, both automatic processes and non-automatic ones. Such procedures are, however, by no means more burdensome than those applied in direct surveys.
11. Given that the preconditions outlined above are fulfilled, large efficiency gains may be realized through utilising administrative sources. However, it should always be recognized that these practices may rely heavily on tradition and their applicability will vary between cultures and countries.

IV. ELECTRONIC DATA COLLECTION

12. Statistics Iceland has a long experience in electronic transfers of administrative databases for statistical purposes and of utilising such information on-line. This has been the case with the national population register, various tax registers and customs databases on foreign trade. In the last few years, such transfers have been improved a lot, not least through the application of web-solutions.

13. Even in countries with a tradition for the use of administrative registers for official statistics, there will still be a need for direct surveys, among both firms and households. In Iceland, the demand for such data has increased greatly in the last few years, mainly as a result of the intensified European cooperation in statistics. But sample surveys will invariably be very expensive in such small societies as the Icelandic. They will also be difficult to maintain over time as the survey population, both firms and households, is very small entailing that the same firms and households are too often hit by statistical surveys.

14. For these reasons, Statistics Iceland has sought to employ different methods for the collection of data where direct surveying is inevitable. One practice which is often used is to combine direct surveys and register-based information. This is done for instance in the European Survey of Income and Living Conditions, EU-SILC, where data on income, housing and a few other variables are derived from registers.

15. Such practices are, however, often not possible which has driven the institution to seek alternative solutions for collecting data. One such solution employed in data collection from enterprises is to collect the data directly from the information systems of firms. Currently, this is done mainly in two fields, in collecting data for wage statistics and for the producer price index, PPI.

16. For a long time, data on wages in the labour market have been obtained electronically from a large sample of firms. The procedure is that after the firms have been sampled they are approached with a request that they deliver data electronically to Statistics Iceland on a monthly basis. For this they have to use any one of the most common wage calculation and accounting software packages utilised by Icelandic firms. At the request of the main labour market organizations and of Statistics Iceland, such software packages have been designed by commercial software producers with the particular statistical needs in mind. An account has also been taken of the obligations of the firms to supply the tax authorities with detailed data. Hence, Statistics Iceland is involved in the specifications of the wage data files. Furthermore, the institution is also involved in preparing the participation of the firms in the survey, for instance by assisting with defining and classifying the enterprises, their branches and their staff according to the appropriate industrial and occupational classifications. Once started, the firms will send the data automatically from their wage files in an electronic format to be read into the Statistics Iceland database. It is of primary importance in this respect that the data submitted for statistical

purposes is a bi-product of the wage calculation and accounting of the firm which are generated automatically at the end of each wage period.

17. For PPI data, Statistics Iceland has approached the firms sampled with the request that they supply monthly data on production, sales and product prices by electronic means. There are two solution applied for this, either the firms send the information in text format to be read into the database or they use a specific web-solution for transferring the data to a specific slot assigned to them for that purpose.

18. There are several things to be born in mind using such methods as outlined here. One is that the implementing stage can be somewhat tricky. Here, it is of paramount importance that contact is established with the correct key person in the data-supplying firm. A first contact with the firm will always be established by a formal letter to the chief executive. Experience shows, however, that a positive response from a chief executive is by no means a guarantee for smooth cooperation. What is important is that the executive responsible for the wage accounting and calculation is prepared to commit him/herself to participating in such a project on a long-term basis. Experience does also show that a continued friendly contact with the responsible executive or unit in the firm is very important for the continued cooperation.

19. Another experience is that changes in the wage accounting software may upset the continuous flow of data and require specific actions to restore data deliveries. An even worse case is if the firms decide to throw out their accounting systems and replace them with completely new ones. In such cases the experience shows that data deliveries can be seriously disrupted as the wage application for statistical purposes is unlikely to be given priority by the accounting units of the firms while they are grappling with the implementation of the new system.

20. Another method for collecting data by electronic means is to acquire the data as bi-product of public information systems. A good example of this is the Icelandic system of comprehensive schools which uses a uniform registration and management software system concerning the operation of the schools, the students, teachers etc. The statistical requirements as specified by Statistics Iceland have been taken into account in the design of this system. Through this, the schools render electronic reports to Statistics Iceland.

21. The electronic collection of data discussed here is not only important from the point of view of efficiency of the statistical operation but also for quality reasons. As the source data are extracted directly from the accounts and information systems of the firms their quality should be basically consistent. Another factor is that these data are traceable which is of great importance for checking for quality and consistency.

V. APPLYING A UNIFORM IT PLATFORM

22. Statistics Iceland has for many years followed a very strict policy of applying a uniform IT-platform within the house. This means basically that all software is compatible or comes from the same family and that decisions on deployment of software and all equipment are taken by the central administration, not the individual units of the institution. This policy has proved to produce large cost savings and gains in efficiency. There are several reasons for this:

- (a) decisions on deployment are taken with a strict view to the relative cost of utilisation. For such a small institution as Statistics Iceland this means that most of the largest and most expensive statistical systems and databases, often designed to handle enormous amounts of data, are rejected in favour of simpler or more versatile database systems;
- (b) relying basically on one family of software brings important efficiencies in terms of learning and thus of application, both as regards the subject matter specialists and the software experts. Of particular importance are the possibilities and indeed practices of sharing experience throughout the institution of applying similar techniques and solutions;
- (c) substantial cost savings have been obtained by signing contracts with software suppliers on comprehensive deals and services involving several compatible systems from the same supplier.

VI. STREAMLINING THE DISSEMINATION SYSTEM

23. At Statistics Iceland, substantial gains have been realised through reorganising the system and practices of dissemination. During the last two decades the system of dissemination has evolved from involving basically the production of printed books and reports to the present stance of web-based publication policy. This has brought important cost savings, substantial savings in production times, large improvements in presentation, readability and quality, and allowed substantial increases in production and the exposure of the official statistics.

24. The use of the computer technology and the web is very widespread in Iceland. This prompted Statistics Iceland in 2003 to adopt a completely new dissemination policy based on the web. This involved the following main changes or features:

- (a) the web was reorganised so as to be capable of being the main medium of dissemination of all the statistics produced at Statistics Iceland for both domestic and international purposes. The web contains some 1.000 tables in Icelandic and about the same number in English, and deploys the PX-Web system for creating and publishing tables. The utilisation of the web is completely free of charge<,
- (b) with the exception of the Yearbook of Statistics the practice of issuing large printed publications was discontinued. Furthermore, the issue of a printed (and electronic) Monthly Statistics was discontinued. (It recognized, however, that there may at some stage be a demand for larger printed publications, such as reviews containing long time-series.);
- (c) the former printed reports were replaced by thematic reports, organised in 16 series, which are meant to be short and concise. These are published on the web, can be read there or downloaded free of charge but are also available in a printed format on demand.

25. At Statistics Iceland, there is no doubt that this policy has been very successful, not least in increasing the exposure and the use of the statistics as all figures on the use of the Statistics Iceland website show large and continuous increases. This is also confirmed in user surveys.

VII. RECRUITMENT POLICIES

26. A small NSI in a small country is bound to have difficulties with acquiring staff with sufficient skills and education. In the larger settings such difficulties may be offset by education within the institution. In the small Statistics Iceland it has proved very difficult to organise continuous statistical education. There have also been limited possibilities for utilising the formal education system for training in statistical methods and in official statistics. The institution has of course organised courses, not least for enhancing the technical skills of the staff, and made use of courses abroad but there has been very heavy reliance on on-the-job training by colleagues.

27. In the light of this, Statistics Iceland has for more than two decades followed the policy of recruiting as far as possible university graduates, in the last few years preferably people with post-graduate education. This has involved using every opportunity to redefine jobs, upgrading them as possible from low skilled tasks to high skilled ones. This has basically taken place when jobs have become vacant. The outcome of this is partly that the number of assistant and secretarial jobs has been much reduced. At the present time, 65 employees out of the total number of 84 are university graduates or have equivalent education. There is only one secretary in the institution whose secretarial duties are only part of that person's overall responsibilities.

28. It is the firm belief at Statistics Iceland that this policy and the highly educated staff have been one of the foundations for the evolution of the institution involving both substantial gains in efficiency and quality.

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