

Topic IV: Progress in the implementation of SDC methods and techniques in central and eastern Europe

**STATISTICAL DATA CONFIDENTIALITY IN THE CZECH REPUBLIC
REALITY AND INTENTIONS**

Invited paper

Submitted by the Czech Statistical Office¹

I. INTRODUCTION

1. Statistical Data Confidentiality (SDC) is among the priority activities of the Czech Statistical Office (CzSO). This important statistical principle is relatively new. Before the far-reaching social changes that took place at the turn of the 1980s, the then Czechoslovak Statistical Service had no obligation to protect individual data. However, some data of the state, of an economic or military nature were subject to secrecy. At the beginning of the 1990s, along with the process of social and legal changes in the former Czechoslovakia and after 1 January 1993 in the independent Czech Republic, the conditions of statistical production changed. The CzSO started to implement a system of statistical data confidentiality.

2. We should note in this context that one of the main tasks of a statistical office in the area of business statistics under the conditions of a planned economy was to control the performance of enterprises against the State plan. Nearly 100 per cent of these enterprises in former Czechoslovakia were state-owned or cooperative. The statistical office was then in charge of publishing economic data also for individual enterprises. On the other hand, demographic and household statistical surveys observed the principles of data confidentiality even before 1990. However, data protection at that time embraced only the secrecy of staff of the statistical office and basic organisational and technical precautions, such as rooms with a special regime and a special deposition of questionnaires. The most extensive measures were taken in population censuses, where questionnaires completed by households were stored for a period of at least 20 years.

3. This short retrospective review is important for us to understand the far-reaching changes that the Czech Statistical Service had to undergo in the 1990s in SDC too. This was done with the advent of the massive use of PCs, databases and data transmission via computer networks.

4. To a great extent, the system of Statistical Data Confidentiality was implemented in practice at the Czech Statistical Office (CzSO) and well as offices of the State Statistical Service already during the 1990s. This system consists of the following parts:

- legislation;
- personnel issues;
- organisational measures;
- technical measures;
- methodological tools.

¹ Prepared by Stanislav Drapal and Jan Matejcek.

II. LEGISLATIVE MEASURES

5. Since 1995 the Statistics Act has laid down the principles and duty to protect individual data in the State Statistical Service. This Act was amended on 1 January 2001. The amendment also applies to SDC and the resulting Act fully complies with the EU standards in this area. The CzSO issued a methodology on SDC for all workplaces of the State Statistical Service based on Regulation (Euratom) No. 1588/90.

6. The State Statistical Service in the Czech Republic is formed by the Czech Statistical Office and workplaces of the ministries executing their activity under the Statistics Act. In particular, it fulfills a methodological and co-ordinating role that the CzSO has assumed towards these workplaces. The methodological role includes above all the preparation of a standard methodology for the whole State Statistical Service. Therefore, the CzSO makes not only standard statistical classifications and nomenclatures, definitions of indicators and mathematical and statistical methods, but also issues standard methodological instructions and principles for the whole State Statistical Service of the Czech Republic, including principles for statistical data confidentiality. In doing so, the CzSO's is concerned with the full harmonisation of the methodology of the Czech Statistical Service with the corresponding legislation of the EU/Eurostat. This standard methodology is enforced throughout the Czech Statistical Service mainly by the fact that under the Statistics Act, the CzSO is the only institution to compile and - after discussion at the Czech Statistical Council - issue the Programme of Statistical Surveys every year. The duty of statistical units (with the exception of surveys among the population) to provide the State Statistical Service with required data at their own cost is based on the inclusion of statistical surveys in this Programme published in the Collection of Laws of the Czech Republic. Within the framework of its coordinating role, the CzSO sees that all workplaces of the State Statistical Service have their own internal regulations ensuring data confidentiality. According to methodological principles issued by the CzSO, every ministry issues its own internal direction made by its minister, which applies CzSO principles to the conditions of a given ministry. Among the total number of 12 ministries, 8 have their own workplaces of the State Statistical Service. The increasing importance of SDC is proven by the fact that one ministry which was unable to substantiate the fulfilment of the conditions prescribed by the CzSO of the confidentiality of statistical data collected under the Statistics Act was excluded from the Programme of Statistical Surveys for 2001.

7. All surveys among the population taken by the State Statistical Service in the Czech Republic are done on a voluntary basis. The duty of individuals to provide data to the State Statistical Service must be laid down by a special act. Such an act was adopted for the first time for the Population Census which took place on 1 March 2001. This law laid down the duty of citizens to complete the Population Census questionnaire. Defying this duty may be penalised by CZK 10 000 (approx. USD 250 or 80% of the average monthly wages in the Czech Republic).

8. An independent article of the Statistics Act of the Czech Republic lays down a penalty for data confidentiality violation, either intentional or careless. According to this Act, the responsibility of an employee of the State Statistical Service has to be found every time. The person to blame may be forced to pay a penalty of CZK 200 000 (approx. USD 5 000 or 15 average monthly wages) or less. A regulation issued by the CzSO President says that data confidentiality violation may result in the termination of the contract of service with a given CzSO employee. Moreover, the enterprise or citizen that suffered harm by the disclosure of their individual data provided to the State Statistical Service can take legal action against the person responsible and claim for damages.

9. However, according to the Statistics Act, individual data on a statistical unit collected for the purpose of a statistical survey may be made public if the authorised representative of a given statistical unit provides written consent to do so. Such a consent should specify data, period of time and the purpose in question.

III. PERSONNEL ISSUES

10. According to the above-mentioned Act, each statistician having access to individual data must be sworn to secrecy which is limited neither by time nor by job tenure with the State Statistical Service. This question is regularly emphasized to employees trained for the statistical service. The respondents are assured of this matter in every questionnaire. The idea of issuing a Code of the CzSO Employee highlighting SDC is being considered.

11. The CzSO and other workplaces of the State Statistical Service have adopted a law, internal regulations for SDC and all the staff were sworn to secrecy. In spite of this, the human factor seems to be the weakest link in SDC. This is not about the danger of deliberate abuse of individual data. The most represented opinion is that data confidentiality can be limited in situations where there is a strong need to use protected data. Mainly in the initial years of making the system of SDC there was a frequent view at the workplaces of the State Statistical Service in the ministries that protected data can be made available to the minister or his deputies who were not sworn to secrecy. Similar pressures appear if there is a demand for data broken down by territory or branch which thereby become individual data and cannot be aggregated in required territorial or branch breakdown to comply with the conditions of SDC.

12. Personnel issues are likely to need much time and effort to achieve a reliable system of statistical data confidentiality, because it is the way of human thinking that has to be changed principally.

IV. ORGANISATIONAL MEASURES

13. The CzSO has already adopted measures to prevent strangers from entering certain sections in the office buildings, or to enter them only if guided by a CzSO employee. The workplaces of the State Statistical Service outside the CzSO (at the ministries) are subject to a special organization regime of internal regulations for the handling of statistical data from data reception from respondents up to their keeping and shredding. These regulations are methodologically coordinated by the CzSO.

14. Organizational measures are rather demanding in the conditions of the CzSO which, including its headquarters in Prague, has 13 detached workplaces in the regions; they split down to the districts. Different types of activity at these workplaces add to the difficulty of ensuring SDC. All the workplaces provide statistical information and statistical services not only to general and local governments, but also to the community at large. However, six CzSO workplaces in the regions collect and process national data on individual branch statistics. This national data collection and processing in the 6 regions takes place in the same buildings as the regional statistics production. It requires strict data protection and no access to unauthorised persons.

15. The statistical staff at the ministries makes up only a small percentage of all their employees. Therefore, it was sometimes difficult to find for these statisticians parts of buildings with limited access to unauthorised persons and appropriate mechanical security (locks, bars). At present, these workplaces have organisation rules for access and for the handling of carriers of data from statistical surveys coming either from reporting units or from other workplaces of the State Statistical Service. These confidentiality regulations must range from incoming mail, including e-mail, to security at cleaning or maintenance work and to storage and disposal of paper and electronic carriers with protected data.

V. TECHNICAL MEASURES

16. Technical measures apply to mechanical means of preventing access to buildings, means of limiting access to rooms where individual data are processed and stored, as well as HW and SW measures. This is particularly about the construction of reliable firewalls for databases, no access to protected data for unauthorised persons, strict rules regulating data storing and making changes in databases, etc.

17. Mechanical security preventing access to statistical workplaces are considered by the CzSO as the basic level of technical precautions. This applies mainly to buildings. Basic mechanical security, such

as reliable locks, bars, break-in preventing foils applied to panes of glass etc., have been used since the beginning of the 1990s in all the CzSO buildings. The statistical workplaces of ministries saw these precautions later. Electronic safety devices have been installed subsequently; when the building is locked, they detect movement in the rooms or the generation of heat or smoke from a fire and alarm the security guard or, in the regions where the CzSO buildings are without permanent guard, they signal the nearest police station or authorised managers of a statistical workplace via phone.

18. Technical precautions inside the buildings to prevent unauthorised access go hand in hand with organizational precautions, i.e. workplaces in charge of providing services to the public are positioned near the entrance to a building and are mechanically and electronically separated from other parts. On the other hand, workplaces handling individual and confidential data are gradually secured with the most reliable and the most expensive elements of safety devices.

19. All technical precautions immediately connected with the collection and processing of data and their storage in databases and with access to these databases, can be regarded as a higher level of technical precautions for SDC. This is about software measures. The CzSO uses experience gathered by other statistical offices, above all in the EU Member States, and also other institutions in the Czech Republic, as well as the services of important companies engaged in data protection. At the state administration level, the CzSO cooperates mainly with experts of the Office for Public Information Systems, Office for Personal Data Protection and the Ministry of Defence.

20. The CzSO and statistical workplaces of ministries have elaborated relatively reliable systems of data protection taken over from reporting units electronically, even though the percentage of these units is still small. Also, the necessary firewalls to protect databases against unauthorised access have been made. Preparing for the switch 1999/2000 (Y2K) and protection from several global computer viruses became a significant test of the readiness of computer systems and their resistance. The computer systems protection of the Czech Statistical Service proved well in both cases. However, links with some cooperating non-statistical institutions appeared to be dangerous. There were some attempts to infiltrate viruses into the internal CzSO computer networks through e-mail. Luckily enough, precautions against this danger proved efficient.

21. Cases of computer hacking of the web pages of various state institutions are becoming more and more frequent in the Czech Republic. Hackers try to reshape presented information and ridicule a ministry or other state institution and thus strike a blow to their credibility. This shows the great importance of software data protection. The development of technology and knowledge opens new opportunities to hackers. The reasons for hacking may be varied.

VI. METHODOLOGICAL TOOLS

22. Unlike the above points, the use of methods and methodological tools for data protection, particularly data transfer via computer networks, is rather underdeveloped at the moment. Electronic data collection uses relatively simple and slow methods of data coding which still fits the bill owing to the limited quantity of these data. Considerably underdeveloped and underused are the methods of mathematical camouflage of data files transferred via computer networks.

23. The CzSO already allows electronic data collection in most surveys. Reporting units can take a decision about asking the CzSO to send a diskette with capture and check programmes. There is a relatively simple coding programme available to reporting units if they want to transfer their data over the computer network. If the message - a data file - is intercepted by an authorised person, this programme, prepared by CzSO specialists, prevents him/her from immediate reading. However, the coding is not too complicated and the decoding at the CzSO is relatively quick.

24. In spite of intense promotion, electronic data collection is used by a very low percentage of all reporting units. Above the CzSO, the statistical workplace of the Ministry of Industry and Trade is about to implement electronic data collection. In cooperation with the CzSO, this Ministry carries out nearly 30 statistical surveys. The same method starts to be applied by the statistical service of the Ministry of

Health in almost 30 surveys too. Great importance in both cases is attached to data protection during their transfer from reporting units via the computer network.

25. As far as active and passive data protection methods inside the CzSO system are concerned, consultations take place with appropriate companies. There are two reasons why the implementation of the new project of the comprehensive system of data protection has been postponed: (i) its financial demand and (ii) talks concerning confidentiality guarantees given by a company which will be allowed to analyse in detail the present system of handling individual data by the CzSO and to design a new system.

26. At the moment, the CzSO tackles on its own two areas of SDC. The Informatics Branch deals above all with the matters of acquisition and application of SW, HW and programming. The Methodology Branch is in charge of general issues of methodology to proceed to SDC. Both Branches use particularly experience gathered by some NSIs of the EU Member States and experience and knowledge gained at Work Sessions on SDC. Among these stimuli are for instance the preparation and application of mathematical methods of camouflaging individual data transferred via computer networks and the mathematical methods of protecting particularly important individual data in databases. However, progress in this area is limited both by the capacity of given CzSO workplaces and by the theoretical sophistication of the methods.

VII. MAIN ACHIEVEMENTS AND EXISTING PROBLEMS

27. The main achievements of the CzSO in transforming the Czech State Statistical Service in the area of SDC in the last 10 years are:

- a) The inclusion of SDC among the basic principles of the activity of the CzSO and other workplaces of the State Statistical Service in the Czech Republic;
- b) Preparing and passing necessary legislation, including internal regulations for SDC, and its harmonisation with similar regulations and practice in the EU Member States;
- c) Implementing necessary organizational and technical measures for SDC in the whole State Statistical Service;
- d) Starting work on preparing mathematical methods to ensure SDC;
- e) Based on implementing points a) to d), there has been no case of SDC violation and neither specialists nor the community at large raise doubts about the strict observance of SDC and about the use of data, which are collected according to the law and exclusively for statistical purposes, by the State Statistical Service of the Czech Republic.

28. Main problems of SDC in the Czech Republic are:

- a) The clear understanding of necessity to protect individual data among all the staff of the State Statistical Service. This is related to an overall change in people's thinking and ability to accept the principles of a different social order and philosophy in contrast to situation in preceding decades;
- b) The self-evident respect for the superiority of the SDC principle to the needs of data use;
- c) Preparing the mathematical methods of camouflage to protect files of individual data during their transfer via networks and improving the quality of software to identify computer hacking and to protect actively data stored.