



## Economic and Social Council

Distr.: General  
2 June 2010

English only

---

### Economic Commission for Europe

#### Conference of European Statisticians

##### **Fifty-eighth plenary session**

Paris, 8-10 June 2010

Item 4 of the provisional agenda

##### **Progress reports and work of the CES Teams of Specialists**

### **Report of the Expert Group Meeting on register-based censuses (The Hague, 10-11 May 2010)**

#### **Note by the Secretariat**

##### *Summary*

As part of the 2010 work programme of the Conference of European Statisticians on population censuses, an Expert Group Meeting on Register-based censuses was organised - jointly with Eurostat - in the Hague on 10-11 May 2010. The Meeting discussed various issues related to population and housing censuses conducted exclusively or partially using data from registers. The meeting was organised primarily for countries that are using registers for the 2010/2011 Census round, or that intend to adopt an approach based on registers for the 2020 Census round.

## I. Attendance

1. The joint UNECE/Eurostat Expert Group Meeting on Register-based censuses was held on 10-11 May 2010 in the Hague at the invitation of Statistics Netherlands. It was attended by participants from Austria, Belgium, Canada, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Israel, Italy, Japan, Latvia, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom. The European Commission was represented by Eurostat. The United Nations Mission in Kosovo (UNMIK) was also represented. Experts from the University of Minnesota (United States of America) and the University of Örebro (Sweden) participated at the invitation of the UNECE secretariat.

## II. Organization of the meeting

2. Mr. Geert Bruinooge of Statistics Netherlands opened the meeting and welcomed the participants. He wished all participants two very useful and pleasant days, and expressed the hope that the meeting would help to produce good census results in the years to come. Mr. Gregor Kyi of Eurostat in his opening made reference to the EU regulations on Censuses. Mr. Paolo Valente of the UNECE secretariat could not join the meeting (his flight was cancelled due to the ash cloud), but his opening address about the results of the UNECE survey on Census approaches was given by Mr. Eric Schulte Nordholt of Statistics Netherlands.

3. Mr. Eric Schulte Nordholt from Statistics Netherlands was elected as Chair of the meeting.

4. The following substantive topics were discussed at the meeting:

- (a) Good practices and taxonomy;
- (b) Quality of registers;
- (c) Fit for the Census;
- (d) Methodology;
- (e) Information on migrants in register-based Censuses;
- (f) The statistician and the data owner;
- (g) Registers: the main supplier of tomorrows' research warehouses?

5. The discussion at the meeting was based on invited and supporting papers. The papers are available on the UNECE website<sup>1</sup>.

6. The recommendations for future work in the field of register-based censuses are given below. A summary of the discussion on the above topics will be presented in an annex to this report and will be distributed to the participants after the meeting.

---

<sup>1</sup> <http://www.unece.org/stats/documents/2010.05.census.htm>

### **III. Future work**

7. The participants proposed that a new Expert Group Meeting on Register-Based Censuses would take place in two years time (spring 2012). Countries were invited to consider hosting the next meeting. Interested countries should contact UNECE or Eurostat in due time.

### **IV. Closing of the meeting**

8. The Chair of the meeting thanked all the speakers and other participants for their contributions. He also thanked the Eurostat and UNECE staff members for their help in organising the meeting. Finally, he thanked the other members of the Dutch Census team for all the excellent work they did to make this meeting a success.

9. The present report of the meeting was finalised after the closing session and distributed to the participants by e-mail.

## Annex

### Main results of the discussion

#### I. Good practice and taxonomies

1. In **Japan**, the Statistics Bureau has no plans to introduce a register-based census. However, there are a number of registers that can be used to improve the quality of the population census. They include the Basic Resident Registers (BRRs), the Family Register and the Alien Registration. As these registers are created and maintained for administrative purposes, the information recorded in the registers does not necessarily reflect the actual situation of the distribution of population and households. So, population statistics compiled from them will not have high reliability in geographic distribution. However, the Statistics Bureau of Japan decided to use the data of administrative registers to complement the missing entries in the questionnaires of the 2010 Population Census. This decision should help coping with the increasing difficulties in enumerating the persons at home. These difficulties depend for instance on the increasing number of households whose members are absent most of the time, or on the increasing awareness about privacy protection.

2. Among the registers planned to be used, the BRRs are most useful for complementing the Population Census questionnaires. These registers are maintained at municipal offices (cities, towns or villages) and are used as the basis for various administrative services. They will be used with the greatest care so that the results of the Population Census precisely reflect the demographical, social and economical situation of Japan.

3. In **Italy**, the National Institute of Statistics (ISTAT) will manage the transition from the traditional census (conducted until 2001) to the census assisted by list in the forthcoming 2011 Census of Population and Housing. Even if traditional objective information still holds, the next census will be made with a completely new strategy. Compared to traditional census, the new strategy will maintain the characteristics of exhaustiveness and simultaneity of collection throughout the national territory, but it will also introduce the following general innovations: 1) the transition to a census based in significant measure on the use list of individuals, households and cohabitations from the local population register (named anagrafe) for mailing questionnaires; 2) the questionnaires collection by a plurality of channels and according to the preferences of the respondents (web, mail, municipal centres of collection); 3) the creation of a web system which will support the Municipalities for surveying and the involved territorial offices in monitoring; 4) the recovering of units not collected in the Census throughout a sample survey contextual to the Census survey and to the comparison Census-anagrafe. These innovations are expected to result in improved and immediate coherence between population register data and census data.

4. The pilot survey conducted in 2009 allowed testing the definition of standards, modalities and transmission of data in the census process. A new survey will be conducted in 2010 to obtain in advance information necessary to optimize the acquisition process of Municipal "anagrafe" lists and to develop the software that will enable Municipalities to submit data.

## A. General discussion

5. In the general discussion on good practices and taxonomy it became clear that an individual with the Japanese nationality can become an alien in Japan when another nationality was obtained and the Japanese nationality was denounced. University records in Japan are only available in aggregate form and therefore it is not possible to link them at the individual level. When registers are used more and more often, the quality issue is becoming a problem. Not only should there be work on measuring the quality of the registers, also the registers should be corrected, when necessary. It could be an idea to use sampling techniques on registers in order to improve their quality. The question pertaining to the quality of registers in general applies to all kinds of sources we use for creating census data. However, the matter of building a correct register of dwelling addresses is particularly salient.

## II. Quality of registers

6. Because of the transition from a conventional census in 2001 to a register-based census in 2011, Statistics **Austria** is facing new challenges concerning data collection, data editing and quality management and documentation. Unlike in some Nordic countries the transition period from a conventional to an administrative census in Austria is very short. After Austria has accomplished a census test in 2006, Austria is currently preparing for the register-based census 2011 with a special focus on quality issues. Concerning documentation a metadata database was established and concerning quality Statistics Austria has started a project in cooperation with the University of Economics of Vienna. Target of the project is to establish a system in which qualitative as well as quantitative assessment of census topics is gained. In a first step a definition is reached of quality suitable for the purpose of developing a set of criteria for quality measurement. Following this the next step is to implement procedures like simulations which bring Statistics Austria into a position to receive quality measures for the criteria. All of these criteria and procedures have to be implemented with respect to the work flow process and metadata system. The developments of the project so far were described and an outlook to upcoming milestones of this project was given.

7. Statistics **Netherlands** is increasingly making use of administrative registers for the production of statistics. This approach makes Statistics Netherlands not only more dependent on the availability of these types of data sources but also on the quality of those sources. It is therefore of vital importance that a procedure is available to determine, in a systematic, objective, and standardized way, the quality of administrative registers. For this purpose a quality framework was developed. The framework consists of three high level views on the quality of an administrative register. The three hyper dimensions are called: Source, Metadata, and Data. With a checklist the quality aspects included in Source and Metadata, which focus on the exchange and the metadata of the data source, are determined. The study of the quality of the data, the third view in the framework, is not part of the checklist. For data another approach has to be developed. Results of the application of the checklist and ways to study the data quality of registers were discussed.

8. Due to the ash cloud the presentation by Statistics Iceland could not be given. In the paper the population estimation methods of Statistics **Iceland** were examined, especially in the light of its comparability with traditional censuses and international guidelines. It was concluded that the main problems lie in overestimation due to delays in or avoidance of de-registrations from the Icelandic National Population Register. Some actions were also suggested that can be taken in order to deal with the overestimation of the population.

## A. General discussion

9. The data for the Austrian 2010 census will be available in 2013. Since 2009 population figures are produced each year. The population figures for October 2008 were published in November 2009. A special and independent office assigns unique identification keys to each and every data file and produces the required linkages. After the identifications keys have been assigned, the data files are obtained. If the data in any of the sources used is of poor quality, Austria tries to make as detailed an analysis as possible of the problems encountered. Then, the owner(s) of the source are contacted and careful negotiations are started. A number of indicators have been suggested that can be used in making a decision on whether or not to use the particular source. Amongst these indicators are ones that are concerned specifically with the availability of fall-back options like going back and conduct a survey. One should hesitate to recommend a data source if there are no valid fall-back options.

10. Sometimes only one source is available and there is an obligation to deliver to Eurostat. In Norway regular meetings are held with each of the data owners. These owners value the (active) participation of Statistics Norway because of the overview (on quality) Statistics Norway has and because of their knowledge on ICT infrastructure. There is much more than just legal to consider when it comes to the (quality) maintenance of registers and data sources in general.

11. Eurostat states its interest in the issue of harmonised aggregated quality indicators. Given that such indicators can be interpreted politically, their development should be based on a broad consensus between census experts. The pooling of knowledge and the cooperation within the European Statistical System and the other UNECE countries is essential to the development and interpretation of such indicators.

## III. Fit for the Census?

12. **Spain** does not conduct a register-based census, but explained its strategy for the 2011 population and housing Census. The Spanish population register “Padrón” plays an important role in this strategy. The structure of the housing frame will be complemented with Cadaster linkage and field work.

13. Since 2004, **France** has a rolling census: a survey (14% of the population) is conducted annually on a portion of the territory. Based on the last 5 surveys, INSEE calculates an official population figure at the end of each year for each commune, regardless whether it has been surveyed this year or not.

14. To improve the representation of the population change particularly on the level of smaller areas, an administrative source, the housing tax, is used. When the survey in a commune under 10 000 inhabitants has taken place one or two years before the reference date of the census, the number of homes subject to the tax helps to extrapolate the population (trend factor - not level factor).

15. This involves some problems: the data is constructed according to rules and practices that meet the fiscal targets; and the separation between occupied dwellings and other dwellings (seasonal or secondary used, vacant) is not sufficiently reliable in the tax databases. Therefore, the final method takes into account the evolution of the *total* number of dwellings from one year to another, corrected by a coefficient of the trend in the number of persons per dwelling. Moreover, it was necessary to establish correction rules in the rare cases of data changes from year to year that are clearly erroneous.

16. Thanks to a pro-active communication strategy between the INSEE and the municipalities the process has raised no objections. However the method requires significant permanent human resources.

17. In the context of a programme to modernise public administration (SIMPLEX) **Portugal** is planning to change its census paradigm, moving from a traditional census to a register-based census in the 2020 census round. However, there exist several identifiers and codes in the registers that could be used for censuses. The issuance of a Citizen Card shall consolidate the usage of different numbers, but so far only 20% of the population have received a card. Despite the progress made through the Citizen Card, it does not yet represent the merging of census information in an integrated administrative register.

18. As a first step, the administrative registers that can account for census topics must be identified and evaluated. The combination of variables from different sources can be used to achieve a richer content, but also to be used for validation and cross checks. Tests have shown high rates of missing data for some variable and a need for extensive data editing. In any case, the register-keepers are crucial in the success of the register-based census, since they practically generate the data which will later be used for the census.

## A. General discussion

19. Spain has conducted a so-called pre-census (pilot 2009) in which an internet survey was running parallel to a paper and pencil survey. The internet response was about 8%. In a separate (high quality) internet only survey, the response was somewhere between 20% and 30%. Based on these results, the final survey was conducted in internet mode only, after 3 weeks a mail questionnaire was sent and 3 weeks later a personal interviewer came to visit. It is important to take the initiative for the internet survey in terms of campaigns and creating general public awareness and to give the recipients of the survey easily accessible identification keys for the internet survey. In France efforts have been made to cooperate with the postal services. The results were not that good. Issues of harmonization arose, especially in the more rural areas of France. Apparently, postal services records were not kept up-to-date, because local postal service men / women in rural areas know where everybody lives. In Portugal all people, illegal or not, have rights, e.g. to access to all kinds of services. Also, some illegal immigrants pay tax and have a social security number.

## IV. Methodology

20. Data from administrative sources and surveys have measurement and representation errors. A theoretical framework for these errors was presented by Statistics **Netherlands**. Micro-integration is the method that aims at improving the data quality by searching and correcting for these errors. One can distinguish between completion, harmonization, and correction for the remaining measurement errors. The different errors were defined, examples of these errors were given from the daily practice (from the Social Statistical Database and the Virtual Census) and operating procedures to correct for these errors were proposed. If one combines register data with sample survey data consistent repeated weighting can be used for consistent estimation. Finally, the position of micro-integration in the total statistical process was described.

21. Collecting data on household and family structure is one of the most demanding topics in censuses. By now all households data in **Slovenia** are based on the field work. In the 2011 Register-based Census all data on households and families will be for the first time obtained from the Register of households which was established in 2007. Even more, all data will be derived from only one variable from the Register (relation to the reference

person). The question is how to improve quality of input data in the very recent source and how to handle administrative data in the statistical process. The challenges such as significant differences between administrative and statistical concepts, complexity of relations in households, legislation obstacles, inconsistency and incompleteness of source data were presented together with some practical examples of solving methodological problems. An important part of quality assessment is also comparability of register-based household data with data from surveys or previous censuses from the user's point of view.

22. Statistics **Finland** gave an example of the so-called register estimation. This method makes simultaneous use of a number of register-based datasets. For example, some 20 registers and datasets are used to obtain information on the population's main type of activity in Finland. The coverage and quality of the registers and other administrative sources vary and statisticians have to make estimations in order to get the best results. The register estimation method is used to form new variables not found directly in any existing registers. The aim is to estimate for each statistical unit the value of a target variable that is as identical with a statistical concept and definition as possible. This value for a statistical variable is established by means of estimation in which all the available existing data and a set of decision rules are used.

## A. General discussion

23. In the Netherlands algorithms exist to impute registers and this takes place according to certain rules that are documented in detail. Coverage errors in the Dutch registers is a largely unexplored area and requires more research. Ideally, it should be done properly and would require two post-enumeration surveys. In Slovenia a new definition of the household has been introduced via a household number. Individuals are free to select the household they wish to belong to. Subsequently, the administrative body assigns a number. So, for each individual a dwelling and a household are distinguished. Finland held its last traditional census in 1985 and has proceeded step by step towards a completely register-based census. They have had some bad experiences with the quality of the registers in the past. However, the quality is improving although the risks involved are acknowledged. Furthermore, now various sources are used simultaneously. The ultimate goal is to be in complete agreement with the UN-definitions, not only on the personal level but also for the household data.

24. In the census, coefficients of variation are required. When the population size is based on registers, other ways to determine the coefficients of variation are necessary. In the Netherlands the under-coverage of the register is estimated to be approximately 200,000 persons. Slovenia has not yet made a decision about this topic. Maybe households from other surveys will be compared to the households in the census. The coefficient of variation is, so to speak, a sampling thing. Errors in registers are measured differently: mostly in terms of total errors, and not only in terms of coefficients of variation. For example, over-coverage can be measured by comparing different sources. Austria uses a similar approach as Finland to the coverage problem of registers, i.e. they constantly try to improve the quality of the different registers and other sources they rely upon.

## V. Information on migrants in register-based Censuses

25. Due to the ash cloud the presentation by Statistics Iceland could not be given. In the paper it is explained that in **Iceland** migration statistics are mainly based on the National Register of Persons (NRP). Since 1986, the NRP operates as a continuously updated register which records all migration events, irrespective of their duration. Therefore, persons that migrate more than once during the year are also counted more than once.



26. The method of estimating the changes to the population at Statistics Iceland due to external migration has its merits and drawbacks. The main advantage, of the current method is the timely production of both flow and stock statistics, which are possible in the first two to three months after the end of the reference period. This more than pays for any small errors in the estimation of the net migration, which over a period of 21 years amounted to less than 0.005% on the average. The main drawback is the problem of separating short-term and long-term migrants, as information about the intention to stay is unavailable. Making some wild assumptions about the relationship between residence permits and the intention of all external migrants as to the length of their stay, the overestimation is perhaps around 13%.

27. Overestimation of the gross migration flows appears to be the major weakness of the migration statistics in Iceland. However, the net migration is apparently to a large degree unaffected.

28. In the **United Kingdom**, measuring in-and out migration is easier compared to other countries, for a number of specific conditions. The survey-based approach currently adopted in principle provides rich information, but is not ideal in terms of collecting data to high levels of accuracy. Large numbers of passengers are interviewed in order to find a limited number of migrants.

29. On the other hand administrative data systems, which count people in and out, have the advantage of being able to provide large volumes of data with the potential for more accurate estimates. However, it is clear that a number of conceptual issues need to be resolved to move from a database for administrative purposes to the possibility of producing statistical counts. Further work will need to take place on the fit between an administrative count of border crossings and a stock count through either a Census or a register/administrative database system.

30. Developments in the definitions of the concept of "migrants" itself will have consequences for how migration can be measured. For example, the increased economic importance of 'short-term' migrants will mean further work that need to be done to distinguish these 'economic' migrants from 'visitors'. Unfortunately, administrative data would not provide information on the reason(s) for entering the UK. It is therefore likely that an integrated approach, using survey or other data, would still be needed to complement administrative counts.

31. In **Denmark**, statistics on migrants and migration for the census are generated from the Central Population Register (CPR) as part of the Danish statistical information system, which covers the whole population of residents in Denmark. The data available in the registers include the basic census topics on migration: citizenship, country/place of birth, ever resided abroad and year of arrival. For citizenship and country/place of birth, there are some limitations for persons born in former Yugoslavia, Czechoslovakia and the former Soviet Union. Data on persons ever resided abroad derive from the dates on in- and out-migration in the CPR, and include migration events back to 1979.

32. Illegal immigrants are naturally not part of the CPR-system and there is no official count of the number of illegal immigrants in Denmark. Some estimates are from 1.000 to 5.000 where other researchers would say that this is only the top of the iceberg. Statistics Denmark has no intention of trying to estimate the number.

33. The register system has a problem related to delay in registration of emigrations. Emigrants are required to register their migration if they leave the country for more than 6 months. But there could be a number of reasons for emigrants not to register their emigration. Emigrants who have not reported their departure will in most cases be discovered by the tax authorities after a year or two if there is no response to the income tax demand or if there is suddenly no income. It is not possible to know how many emigrations

are actually missing, but it is assumed that it is a fairly small share which is not known after one to two years. Statistics Denmark waits one month after a year is completed before extraction of data on occurrences as well as the registered population in order to wait for the short-termed delays in registrations in the PSD. The possible over- and under representation would concern less than one per cent of the immigrant population per year. Therefore, it is not considered a problem for the registered population in the census.

## A. General discussion

34. The census is almost identical in all parts of the UK; the reference date of census is the same. Roughly speaking, about 90% of the questions are identical and about 10% is nation dependent. The definitions of immigrants are the same throughout the UK and harmonization is therefore not expected to be a (real) problem. The UK migration survey is held in the field by instructed personal, i.e. at airfields and on the quays (for the ferries). The interview is brief, and paper and pencil only. This means that it does not require a lot of time and people are willing to cooperate. The response rate lies between 70% and 80%. Denmark is able to monitor naturalization because changes in citizenship are asked for in the survey. In Denmark 1<sup>st</sup> and 2<sup>nd</sup> generation immigrants are counted to enumerate ethnicity. The response rate of the survey amongst immigrants in Denmark is 42%. Language problems are not responsible for the low response rate. Studies indicate that response rates are strongly influenced by the education level of the interviewees. A low education level tends to result more often in a non-response.

## VI. The statistician and the data owner

35. Statistics **Norway** has a strategy on data collection that is based on comprehensive cooperation between external register owners and Statistics Norway. To establish and maintaining a dwelling register of good quality, Statistics Norway has played different roles. In the early stages of the process Statistics Norway had the role as project manager. As soon as possible the responsibility was transferred to the register owners. Based on this case, different aspects of being a statistical institute playing an active role in establishing and maintaining administrative registers have been discussed:

- (a) Good support from the government;
- (b) Register shall be beneficial for administrative purposes and for public interest and not only for statistical purposes;
- (c) A good communication strategy;
- (d) Transfer of the responsibility to the register authorities as early as possible;
- (e) Encourage the use of the register - the more use it, the better chance for good quality in the register;
- (f) Quality monitoring is important and should be done continuously.

36. **Italy** has engaged in a strategy for the 2011 population census which is based on the *register supported* enumeration using the list of registered household of municipalities. This new Census plan has the aim to facilitate the municipalities the comparison between Census questionnaires and registered information.

37. A *record linkage* between two archives has been done to check the quality of the personal data lists as support instrument in the fieldwork survey. The unsuccessful matches have been analyzed to identify over- and under-coverage of the population register.

## A. General discussion

38. In Norway there is no difference in the ways in which institutional and private dwellings are treated. In the negotiations with the register owners, Statistics Norway has devised a set of custom-made control measures. These control measures are supplied to the different register owners. Because Statistics Norway has an overview of all required information, they are in a better position to monitor the different quality aspects. It should not be difficult to extend the Italian census approach for the 12 cities to the entire country. The 12 selected cities are the most complicated ones. Actually, already preparations are being made to take the step to extending the approach to cover the whole country. By law, the Italian census only applies to people with a permit to stay in Italy. Work by Statistics Norway (as presented in this meeting) shows that a dwelling code is critical. The Norwegian experience is that the development of the dwelling register has actually improved the quality of the two underlying registers.

## VII. Registers: the main supplier of tomorrows' research warehouses?

39. Statistics **Finland** decided to discard the mainframe environment and move all statistical production into an open environment. Annual census-related statistics on population structure, families, household-dwelling units, dwellings, buildings, and employment were the largest users of the mainframe environment and the renewal of their production was a major effort that took several years. The project started in 2002 and finished in 2007. Production started in the new environment in 2007 with the production of statistics for year-end 2006. The demands on the new system included the requirement of close connection with education statistics and geographic information system (GIS) processes. The challenge in the new production environment was to create a system that could satisfy the needs of both statistical production and the use of statistical data for dissemination and research purposes.

40. Register-based censuses are planned for 17 UNECE member states in 2011, of which eight participate in the **IPUMS** census microdata initiative to disseminate samples to researchers on a restricted access basis. The Netherlands is the only country currently entrusting register-based samples to the IPUMS project. Constructing samples from register-based data poses few serious technical issues, but there are at least two significant obstacles: administrative (laws and regulations regarding confidentiality and dissemination), and methodological (sample unit and variable availability). The second issue was addressed. An analysis of IPUMS user statistics suggests that high-precision, household samples, rich in demographic, social and economic detail, are essential if the microdata are to be used widely. Usage statistics for 47,623 IPUMS extracts were analyzed to reveal the variables in greatest demand. Probably the most striking finding is that three IPUMS constructed variables rank among the top ten percent of variables requested: spouse's location in household, mother's location, and father's location. These variables can only be constructed from household samples. Register-based censuses may make it possible to offer a greater range of variables than conventional censuses. However, if households cannot be constructed from the registers, then the data will suffer from a lack of demand among IPUMS-International users. High precision, richly detailed household samples are essential for high quality research based on census microdata, regardless of whether the census is conventional or register-based.

## A. General discussion

41. The question is what happens when the required information is not available in Finland. It depends on what the requested information is and where the request is coming from. If the request pertains to census data, the needs of Eurostat have the highest priority. If necessary, Statistics Finland has a discussion with the relevant source owner and tries to entice them to include the requested additional information. Generally speaking, it is problematic and situation dependent. Data on the household dwelling units are included in the data warehouse since 1985.

42. The Chair of the meeting takes the opportunity to react on the provocative presentation by the University of Minnesota. So far the Netherlands is the only register-based census country represented in the IPUMS project. The number of variables is limited due to strict confidentiality rules for public use files in the Netherlands and not because of the register-based census approach. The Netherlands hope to continue their cooperation. It helps a great lot that now two datasets per Census year can be discussed: one with many records and not so many variables and one with more variables but not so many records. For the future remote access options for added value (e.g. derived variables) and more detailed analyses look promising.

## VIII. Final remarks and acknowledgements

43. Before drawing conclusions of the meeting, Eurostat took the opportunity to provide some information about SDMX and the EU Census Hub. The data are principally stored at the individual NSI servers, from where the EU Census Hub retrieves and collects the data to assemble the data sets requested by the user. This requires a harmonisation of definitions and specifications for the different variables, the structure of data cubes and the data format (SDMX). The EU Census Hub will not be a substitute for national data warehouses, but can rather become a main client of those warehouses.

44. Eurostat thanked the participants for the papers provided and for the rich discussions. It appreciated the high quality of the contributions. They prove that quality of register-based data sources is an area of research which is increasingly important, full of life and vibrant. Eurostat considers the ongoing work on the development of appropriate quality frameworks of crucial importance. This meeting constitutes a significant step forward in this area.

45. On behalf of the participants of this workshop, Eurostat extended its gratitude to the Chair of the meeting and his colleagues as well as to Statistics Netherlands, for the excellent organization of this workshop.

---