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Study topic 2

PILOT CENSUS OF THE POPULATION, HOUSEHOLDS AND HOUSING, REPUBLIC OF SLOVENIA, 1998

Invited paper submitted by Statistical Office of the Republic of Slovenia[2]

Summary

1. Within the framework of preparations for the 2001 Census, in the **first half of April 1998** the Statistical Office of the Republic of Slovenia carried out the **Pilot Census of the Population, Households and Housing** (as of 31 March 1998 at midnight).

2. Slovenia is a small country as regards its area as well as the number of its population. It is only slightly bigger than 20,000 sq km. At the last population census in 1991 slightly less than two million people (1,965,986) lived in 5,946 settlements and 640,195 households (averaging 3.1 members) on this picturesque piece of Central Europe.

3. First reliable data on the number of population in Slovenia come from 1857, when the then Austria carried out the first “modern” population enumeration and 1,101,854 people lived on the present-day territory of the Republic of Slovenia.

4. Republic of Slovenia takes into consideration, as most countries do, international recommendations and takes censuses every 10 years in the year ending with 1 (e.g. 1961, 1971, 1981, 1991).

1 The papers which are prepared for this work session will be treated in the same manner as papers that are prepared for seminars.

2 Prepared by Petronela Vertot.

5. Because Slovenia, which is now an independent country, was at the time of the last census (31 March 1991) part of the former Socialist Federal Republic of Yugoslavia, it was preparing for the census together with other Yugoslav republics. Although it consistently respected all instructions of the Federal Statistical Office in Belgrade, which was the co-ordinator of all post-war censuses in Yugoslavia, in preparations for the 1991 Census Slovenia decided to introduce some novelties as regards the content and technique, which differed from those jointly planned for the census, and thus drew nearer to the procedures used by developed European countries at their censuses taken around the year 1990. Thus the Slovenian 1991 Census was carried out completely independently and differently as regards the concept and content than in other parts of the former Yugoslavia.

6. Statistical Office of the Republic of Slovenia has been striving for a number of years to develop register oriented statistics (i.e. more rational and cheaper statistics). This striving is evident mainly in two ways:

- the use of data from the existing registers and databases, and
- the use of data which were collected with statistical surveys as the basis for setting up new registers.

7. Already at the 1981 Census we found that the development of information technology brings better conditions for the development of register oriented statistics and that thus there is an alternative to the classic method of taking a census based on face-to-face interviewing. Thiswas dictated by ever increasing costs of organising and carrying out the census on the one hand and at the same time ever increasing needs for data on the other hand. Therefore the Statistical Office carried out the 1991 Census by printing part of the data on census forms in advance. The data were taken from: the Central Population Register, the Register of Territorial Units, the Register of Organisations and Communities, and the Database on Employed Persons.

8. The 1998 Pilot Census in Slovenia was carried out between 1 and 15 April 1998, on a small part of the population, which was selected with the method of simple random sampling. The sample covered 64 census districts, where were collected data from all persons, households and dwellings. In selected census districts there were about 3,300 households and dwellings with just under 10,000 inhabitants, which is 0.5% of the Slovene population.

9. Data were collected in two ways:

- face-to-face interviews in all 64 census districts,
- postal method in 21 census districts.

10. Data entry was performed interactively with Blaise software. The data entry and editing application was prepared within the program system Blaise III, Version 1.18 and installed on the local area network of the Slovenian Statistical Office.

11. As regards the available resources data entry and editing were carried out very successfully.

12. Finally, it is possible to make a decision that cheaper methods, like self-enumeration and mail-method can not be applied in Slovenia yet, because results obtained are not reliable enough. For the next census we plan to use the face-to-face interview method, but only for collecting those data, which we are not stored in registers.

BACKGROUND OF CENSUSES IN SLOVENIA

13. Slovenia is a small country as regards its area as well as the number of its population. It is only slightly bigger than 20,000 sq km. At the last population census in 1991 slightly less than two million people (1,965,986) lived in 5,946 settlements and 640,195 households (averaging 3.1 members) on this picturesque piece of Central Europe.

14. First reliable data on the number of population in Slovenia come from 1857, when the then Austria carried out the first “modern” population enumeration and 1,101,854 people lived on the present-day territory of the Republic of Slovenia.

15. Republic of Slovenia takes into consideration, as most countries do, international recommendations and takes censuses every 10 years in the year ending with 1 (e.g. 1961, 1971, 1981, 1991). Because Slovenia, which is now an independent country, was at the time of the 1991 census (31 March 1991) part of the former Socialist Federal Republic of Yugoslavia, it was preparing for the census together with other Yugoslav republics. Although it consistently respected all instructions of the Federal Statistical Office in Belgrade, which was usually the co-ordinator of all post-war censuses in Yugoslavia, in preparations for the 1991 census Slovenia decided to introduce some novelties as regards the content and technique, which differed from those jointly planned for the census, and thus drew nearer to the procedures used by developed European countries at their censuses taken around the year 1990. Thus the Slovenian 1991 census was carried out completely independently and differently as regards the concept and content than in other parts of the former Yugoslavia.

16. All censuses since 1921 have included a census of the population and households. In the census living quarters were included as a third census unit, although only those of bigger towns, but since 1971 all the living quarters in the republic have been included. The 1991 census was, as regards the number of census units in the Republic of Slovenia, the most extensive census so far, since besides population, households, and dwellings as in the previous censuses, we also carried out a census of agricultural holdings, which were for the last time covered in 1969.

17. Our last census was also taken on the basis of a special Law on Census adopted especially for the purpose of taking the census. This law regulated its preparation, organisation, content and realisation, and security of individual data. A special law defines and regulates the amount of funds needed for preparing and realising the census as well as the way of spending these funds.

LAST CENSUS, 1991

18. In taking the 1991 census we used the method of face-to-face interview. About 10,000 enumerators were involved in the project. They were, of course, first properly prepared for their task. Since the territory of Slovenia was divided into about 14,000 census districts, one enumerator worked in one bigger or two smaller districts. On average, one enumerator visited 60-80 households during the 15 days of the census. At the 1991 census we did not make use of sampling or postal distribution nor did we use a combined method.

19. Methodological and organisational preparations for the 1991 census and its realisation were done by the Statistical Office with a working group of experts which was formed specially for this purpose and joined in the Bureau of the Census, while in communities municipal census commissions were authorised to take care of carrying out the census.

20. Collected census material was prepared for optical reading, which was finished at the end of 1991. The Statistical Office managed, with the help of CGK technology, to read and control in the agreed eight months about 2,8 million forms, so that the major part of forms for the census contained some basic data on persons from existing administrative registers. Part of the attributes needed for the census was taken over from other databases with the help of personal identification numbers.

21. We used the new OCR technology - Allfont System 2700 - which proved suitable since 97-99% of forms were covered satisfactorily. Simultaneously to optical reading the control of material was carriedout, and after the reading also the interactive logical control with specially prepared software. Processed census data were stored in four relation databases: Relation Database on Population, Relation Database on Dwellings, Relation Database on Households, and Relation Database on Agricultural Holdings.

22. Basic final results of the 1991 census were for all four units, i.e.: population, households, dwellings, and agricultural holdings, mediated to all communities for their territory (up to the level of settlements, which means for local communities and settlements inside them) immediately after the processing in a form of a computer print and on diskettes.

23. First preliminary results by census districts, settlements and local communities were published in May 1991, while final results were published in June 1992 in regular publications of the Statistical Office: Rapid Reports, Results of Surveys and Statistical Yearbook.

24. We offered to our users all tables up to the level of settlements also on computer media. They only had to express their wish to the Statistical Office. All wishes of individuals and research organisations for dissemination of aggregated data in the form of so called “non-standardised” tables were and still are being individually solved from the four basic relation databases of census data in the determined time limit and in accordance with the agreed terms.

25. For complete preparation and realisation (preparation, fieldwork, data processing) of the census we spent about 100 million Slovenian tolars, i.e. about 11 million German marks, which means 5.5 German marks per capita.

CENSUSES AROUND YEAR 2000

26. Statistical Office of the Republic of Slovenia has been striving for a number of years to develop Register oriented statistics (i.e. more rational and cheaper statistics). This striving is evident mainly in two ways:

- the use of data from the existing registers and databases, and
- the use of data which were collected with statistical surveys as the basis for setting up new registers.

27. The Law on Census, adopted for the 1991 census, defined the multipurpose use of some data collected with the census. It also defined that the data collected with the census should be used for setting up two new registers, i.e.: the Register of Dwellings, and the Farm Register, which should, besides their basic tasks of providing data to users, be used for preparing and carrying out the 2001 census. Because the Register of Dwellings was not setting up, we couldn't used it to nor last pilot census in 1998.

28. So, we are in similar situation - but not equal - as most register-oriented countries. First, we have one universally used personal identification number and we also have some nation-wide administrative and statistical registers, which enables us to plan the implementation of the census with the so called "combined method". The available administrative registers namely do not enable implementation of the census solely on their basis because they do not contain data from all fields covered by censuses.

PILOT CENSUS OF POPULATION, HOUSEHOLDS AND DWELLINGS IN 1998

29. Within the framework of preparations for the 2001 Census, in the**first half of April 1998** the Statistical Office of the Republic of Slovenia carried out the **Pilot Census of Population, Households and Dwellings**(hereinafter: Pilot Census). There was not special Census act for making pilot census in Slovenia. It is regulated by the Law on National Statistics (Official Journal of the Republic of Slovenia, No. 45/95) and National Programme of Statistical Surveys (Official Journal of the Republic of Slovenia, No. 70/97). Confidentiality of data collected with the Pilot Census is also defined by the Law on Confidentiality of Personal Data (Official Journal of the Republic of Slovenia, No. 38/90 and 19/91). All persons selected in the sample responded to questions voluntarily and all persons co-operating in the Pilot Census are obliged to protect personal and non-personal data which they obtained in their work. This obligation does not stop after the regular or contract work for the Statistical Office is finished.

Main Objectives

30. There are some primary objectives:

- Whether questions are formed in such a way that interviewers will understand them, and most of all that they will be understandable to people completing census questionnaires unaided. The quality of data collected with the ensus to a great extent depends on that.
- Whether with these questions, harmonised with international recommendations for censuses, we will be able to collect at the regular census in 2001 all data which Slovenia is - due to concluded international agreements - obliged to send to various international institutions but does not collect with other statistical surveys.
- The most suitable methods for collecting exact data on observation units for the 2001 Census in Slovenia - whether it is possible to use the postal method at the 2001 census.
- How and to what extent it will be possible to use the existing administrative sources at the 2001 Census. Data collected with thePilot Census will be compared with the existing administrative sources and quality and applicability of these data for the 2001 Census will be tested. We will also test the software necessary for implementing this task.

31. In addition the 1998 Pilot Census will also assess:

- Whether the existing maps can be used as a support for implementing extensive statistical surveys.
- Which method of data coding would be the best for the 2001 Census data processing.
- Whether census questionnaires used for the Pilot Census are suitable for "optical reading".
- Whether guidelines for taking the census are suitable.
- Whether the population has been adequately acquainted with thePilot Census and whether we managed to persuade to co-operate.
- Whether the interviewers were adequately trained for the job.
- Which is the most economical method of collecting data with censuses.
- Data processing.

Sample

32. The Pilot Census sample covered 64 census districts, selected with the simple random sampling where as of 31 March 1998 at midnight (census reference date) we wanted to collect data on: population, households, dwellings. In these census districts we collected data from all persons, households and dwellings. In selected census districts about 3,300 households and dwellings with (estimation) just under 10,000 inhabitants should be interviewed, which is 0.5% of the Slovenia's population.

Fieldwork

33. Fieldwork lasted from 1 to 15 April 1998 and the critical moment of the census was midnight between 31 March and 1 April 1998. Data were collected in two ways: face-to-face interviews in all 64 census districts and postal method in 21 census districts. In one third of selected census districts where the postal method was also used, by the end of March 1998 all households received census questionnaires by mail with the request to fill them in and return them by mail to the Statistical Office of the Republic of Slovenia by 7 April 1998 at the latest. Of course, we sent to households taking part in the postal surveying an advance letter with the request to co-operate in thePilot Census.

34. In census districts where data from households were collected only with the face-to-face method, interviewers started collecting data on 1 April at 7 a.m. In census districts where data from households were collected by both methods (postal and face-to-face), interviewers started visiting households on 8 April 1998 at 7 a.m., which was the first day after the deadline for households to send completed questionnaires to the Statistical Office. Between 8 and 15 April the same households were visited by interviewers, which collected data with face-to-face interviews. In this way we were able to find the difference between data collected by the postal method and data collected in face-to-face interviews conducted by trained interviewers. This will enable us to judge whether the 2001 Census could be carried out with the postal method.

35. As regards the contents, Pilot Census questionnaires were less extensive that for regular censuses. We selected questions which would enable us to check data quality in the existing administrative sources and questions with which we want to test if questions are understandable.

36. A combination of various questions will enable us to determine the number of persons registered at a given address as well as the number of persons actually present at this address. Of course, in addition to the number, we will (as at usual censuses) find various population structures by asking respondents about their vital, education, migration, economic and other characteristics. That is why the questionnaire for persons is divided into several parts. With the combination of some questions on individuals and households in which they live we will obtain data on families.

37. As mentioned, with the Pilot Census we also collected data on dwellings. We recorded permanently inhabited dwellings and temporarily inhabited dwellings. The questionnaire on the dwelling is divided into two parts.with the first part we wanted to collect basic data on the floor space of the dwelling, number of rooms, auxiliary rooms in the dwelling, installations, method of heating, etc. Questions in the second part were intended for households.

38. Added to the questionnaire were short explanations which contained guidelines for filling in the questionnaire and short explanations of individual questions. They were intended for households co-operating in the postal survey. Guidelines for interviewers were, of course, more extensive.

39. Although questions were formed as if persons answered them ontheir own, data on children, disabled, sick and absent persons were mediated by adult members of the household. They also gave data on elderly members of the household if these were unable to give answers themselves. Data on temporarily absent members of the household should be given by adult members of the household who were most acquainted with the required data.

40. If only persons who were unable to give answers on their own were present at the interviewer's visit (e.g. only small children), interviewers left a note about a later visit and visited household once again later.

41. When interviewers finished their work, they had to edit the census material. Interviewers gave the edited census material to their supervisors immediately after they finished working. They had to finish work by 15 April 1998 at the latest. Main identifiers had already been written on the map. They were: CODES: municipality, settlements, census districts.

42. There was space for writing these identifiers on the front page of the control sheet (PP-1). When interviewing dwellings and households interviewers defined SERIAL NUMBERS of the dwelling, household and building. Only correctly completed identifiers enable correct linking of individual questionnaires and their parts at data processing.

Data Processing

43. I will mostly focus on findings connected with the census of population and households. As unserious as it may sound, in our opinion the quality of processing is highly "influenced" by the quality of interviewers' work. We namely think that even a badly qualified coder cannot "damage" a well answered questionnaire and vice versa that even a well qualified and thorough coder cannot "improve" what the interviewer did not do (bad input material).

Data Coding

44. Pilot Census of Population 1998 data were collected in a classical way, i.e. with fieldwork interviewers entering data into paper questionnaires. A smaller part of the sample population answered questionnaires on their own and sent them to the Statistical Office. Before being entered and edited, all material was manually checked and coded.

45. Material collected in a classical way was performed in two stages:

- at the Demography Statistics Department: editing census material (mainly establishing correctness of entries in the control sheet and checking the entered serial numbers of dwellings, households, buildings and persons); and
- in the Survey Studio: transfer of codes into adequate fields (if not done before); coding of individual questions using various sets of codes, checking and correcting links between individual questions.

46. Coding of census forms was performed in the survey studio by permanent staff of the Statistical Office who also code regular statistical surveys. They were divided into two groups: one group coded economic characteristics of persons and the other coded all other data on persons.

47. Methodologically, coder's work was monitored/supervised by census methodologists when necessary (means: Demography Statistics Department staff were not always present at the coding, but were always available for giving explanations). In addition, their work was constantly supervised by head of the survey studio, who was also a national trainer for the Pilot Census.

48. Material collected with the postal survey - there the procedure was reverse. Demography Statistics Department received from the Survey Studio mostly already coded questionnaires and had to define on the basis of entries in the control sheet PP-1 (census material of interviewers) serial numbers of dwellings, households, buildings and persons, and prepare the material for data entry.

Deficiencies and faults

49. Deficiencies and faults in coding are the result of both inadequate work of some interviewers:

- systematic non-entry or incomplete entry of the personal identification number in some census districts,
- incorrect entry of place of migration - not considering the definition of migration - in our opinion this was the biggest "methodological" mistake of interviewers at the Pilot Census,
- incorrect interpretation of the definition of a household,

as well as inadequate work of coders, i.e.:

- for testing how to ask questions on occupation in the next census so that answers will be adequately coded, in the Pilot Census we asked several questions. For coding these answers we used two different code sets (Standard Classification of Occupations and the code set of the National Employment Agency), which however have very similar descriptions for some occupations. This was difficult both for coders and for data entry personnel since they often mixed the two, which became evident in the subsequent analysis; individual codes are namely correct in both code sets.

Implementing Data Entry and Editing

50. Data entry was performed interactively with Blaise software on five computers in the Survey Studio; work was performed by contract workers (mostly students). During data entry and editing, authorised users had access to this application from workstations in the local area network of the Statistical Office. The whole training of data entry personnel - in both contents and technique - was prepared on the first day of data entry. A member of census methodological group was present there, available for giving methodological explanations, assisting in coding and similar.

51. Software met our needs and there were no major delays. Only on the first day two data entry persons had to work in another room because of incompatibility of computers.

52. Checking and correcting was prepared so that data entry was controlled only within the framework of individual questionnaire PP-2B or PP-2C. Checking and correcting was supplemented during the whole data entry period and the last check was performed on the last day of data entry.

53. Work proceeded according to plan 15 days, when data entry was finished, including questionnaires which arrived by mail, i.e. 9,500 persons in total. Additional control was concluded at the end of May, when the whole material was loaded into the Oracle database.

Preparation of the Application for Pilot Census Data Entry and Editing

54. Because the possible technical equipment for optical reading (data capture) in the regular census in 2000 is still being tested, questionnaires of the Pilot Census have not yet been "optically read". So the data entry and editing application was prepared within the program system Blaise III, Version 1.18 and installed on the local area network of the Statistical Office.

55. Similarly as in other Blaise applications, we took into consideration the principles of JAD (Joint Application Design); planning and development of an application in close co-operation with users (Demography Statistics Department) and developers (Service for Developing Data Entry and Editing Applications).By great commitment from both sides and using the interactive prototype approach (making a prototype application - testing - making a new version of the prototype) we made an application that enabled interactive data entry and editing on the local area network of the Statistical Office, and at the same time enabled transfer of testing data into the Oracle database and TPL. Development of a satisfactorily working application at the time was possible with the use of RAD (Rapid Application Design) principles; by designing a temporary working group, close co-operation between developers and users and by using efficient tools with which one can in a very limited time achieve a fairly good efficiency.

56. Methods we used (JAD, RAD and the prototype approach) are closely mutually linked. Their result are flexible systems for changing organisation Taking into account the needs for more and more dynamic and efficient development and maintenance of applications, in the future we can expect the above mentioned methods to be used more.

Analysis

57. Installation: the final version of the application was installed on the STATP server, where the key part of processing was performed. A common file was formed on the server disc. According to the principle of a multi-user approach, data entry personnel interactively accessed this file via their workstations in

the Survey Studio. Minor initial problems linked with variousconfiguration of computers were soon successfully done away with.

58. Data Entry and Editing: during data entry and editing, 17 control criteria were changed or added and 3 of 9 coding reference files were supplemented or updated3. At the end there were 187 control criteria (including formal control - you can find more detailed data in the technical description of the data model, Annex 1).

Work was never stopped, there were no delays. We can attribute slower data entry in comparison with other Blaise applications to the following:

- great number of control criteria,
- control criteria being very demanding,
- big differences in quality of material received from various census districts.

Final Batch Control After Data Entry: the main reason for carrying out this phase (which is not obligatory) is the fact that it was not possible to anticipate all relevant criteria in the available time. Theobject of final control were above all criteria which were defined and implemented later on, i.e. after the start of data entry. The program was partly updated already during data entry (taking into account new findings), and previously entered data were checked with final criteria by the final batch control.

59. This phase covered also more demanding control within the framework of families (within households) for which data entry personnel were not able to decide on their own. Simultaneous checking of these criteria would slow down data entry, which was, despite a great number of control criteria, performed within the foreseen time.

60. Subsequent control was reasonable as it did not cause any delays and removed some illogicalities which would show in the phase of tabulation.

Transfer of Clean Data to Oracle: already during developing the data entry and editing application, we designed a test data model for the Oracle database. It was possible to design the final data model only after the fields in the data entry and editing application were defined, i.e. at the beginning of data entry. With the new option in Blaise III it is possible anytime during data entry to generate from the hierarchical database in Blaise a set of ASCII files which structurally correspond to relation tables in Oracle. A combination of Blaise-Oracle-TPL has already proven effective.

Defectivenesses and faults

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3 For the need of logical control, 3 derived combined sets of codes were added to the 6 basic sets of codes (sample, municipalities-settlements-streets, countries, schools, activities, occupations, education).

- In data entry all errors originating from previous phases (interviewing, checking and correcting, editing and coding of the census material) became evident.
- Most bottlenecks were caused by incorrect or deficient coding.
- In the regular census we have to ensure that data entry personnel are well qualified for coding.
- Possibility of accepting errors (Suppress) has to be limited as much as possible, because faster work this option enables can lead to abuse.
- After entering data for an individual census district we need to ensure "locking" the key immediately after entering data from the last questionnaire in this census district (so that data entry personnel cannot continue to enter data for another census district under the same key).

Conclusion

61. As regards the available resources data entry and editing were carried out very successfully. The fact is that the used method of work proved efficient despite some limitations and improvisations. Irrespective of future use of this model in the future census (where the logical choice for the basic data entry technique would probably be scanning), experience we obtained are of great importance for further progress and modernisation of processes of those statistical surveys performed by the Statistical Office where there are possibilities and interest for development in the direction of efficient, flexible and pragmatic systems for data processing, which are feasible in our environment and capable of doing their job also in changing circumstances.

The Database Design, Data Transfer and Linking With TPL

62. We made a draft entity diagram which served us as the basis for making a diagram of tables

63. and relations. We finished filling the with the assistance of the following applications: Designer/2000, Procedure Builder, SQL*Plus and SQL*Loader.

Data Model Design

64. With Blaise we generated DLL (Data Definition Language) documents and thus obtained basic census tables. These basic census tables are not suitable for data filling but save us time, since we do not need to re-enter all fields from the questionnaire into Designer/2000. The next thing we did was to make the entity model design, design of table model and relations between tables and procedures for calculating (defining) derived attributes.

Data Transfer to Oracle Database

65. To test the Oracle-TPL links, we loaded part of the material into the database before data entry with Blaise was completed. At the same time we checked correctness of procedures for data transfer (CTL scripts). In the future the whole procedure will be simplified since 90% of CTL scripts can be generated already in Blaise. Thus we avoid mistakes in entering positions into

ASCII files. In implementing the big census too it is much desired that some experimental fillings are performed (e.g. 10,000, 100,000 and 1,000,000 records), since we can very quickly find where mistakes appear most frequently.

66. At the very filling of the Pilot Census database we found that 0.46% of data were wrong (mainly at the filling of the table PERSONS), however, mistakes were mostly from the first contingent of data which did not include all logical controls and which means that the percent of mistakes could be even smaller.

Oracle-TPL Links

67. The Pilot Census was also a pilot project for using TPL for PCs. We had no technical problems with tabulation and the Oracle-TPL link worked. Response times can hardly be estimates at such a small amount of data. We would need more records to test response times properly. In more demanding tables it showed that it is necessary to prepare many views, therefore we will have to analyse if there is a more appropriate solution (denormalisation of data into temporary tables).

Conclusion

68. We can say that in a relatively short time and above all due to very good co-operation between all three departments and the product owner all the necessary activities for support and processing of Pilot Census data have been implemented. We have to emphasise that the Pilot Census as a process covered all phases of a statistical survey and that it will be a good reference for carrying out pilot projects within the program Modernisation of National Statistics.

Annex 1: Data Model for the Pilot Census 98 (see: Enclosure)

Tabulations of data and Results

69. Because it was planned that final results of the 1998 Pilot Census would be transferred to the ORACLE database, we decided to make tables with TPL TABLES (Version 4) and TPL-SQL (Windows NT) software, despite the fact that we did not have any experience with these tools. Comparative tables with the 1991 Census data were made with the standard TPL package on IBM computers.

70. A lot of work was necessary, mainly in preparing more demanding tables for comparing census data with data in the "census database" set up on the basis of administrative sources.

71. In addition to printed tables made in PostScript, all subscribers received Data Tables, which are intended for their further analyses with various tools like Excel.

72. Tabulation of simple tables presented no problems, response times were acceptable. Of course, we cannot draw conclusions on response times necessary for processing the regular census only on the basis of this small number of data.

73. The first simple tables produced are compared to the results of the last population census in 1991. All table fields with extremely strange filling are checked again. Some item distributions are sorted out by census districts to be able to discover unreliable extreme values.

Conclusion

74. Finally, it is possible to make a decision that areas cheaper methods, like self-enumeration and mail-method in Slovenia can be applied not yet, because results obtained are not reliable enough.

75. Slovenian statistical Office is of the same opinion as many other statistical offices regarding the usefulness of population register for demographic statistics system improvement. During the years between censuses it was possible to compile balances of population, make estimates of total population and population patterns by sex and age for every socio-political community on the basis of data of register-departure service, on in - migrations and out - migrations, external migrations and on workers leaving the country and coming back from temporary work abroad.

76. Population registers data utilisation in census, as mentioned above, will lead us to:

- achievement of a considerable rationalisation of statistical data collection,
- solution of non-response problems in statistics, specially in census,
- preventing enumerator’s influence on results of certain statistical inquiries.

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Annex 1: Data Model for the Pilot Census 98

slovensko / slovenian	English
POPIS	**CENSUS**
STANOVANJA	**DWELLINGS**
GOSPODINJSTVA	**HOUSEHOLDS**
OBCINE	**MUNICIPALITIES**
NASELJA	**SETTLEMENTS**
ULICE	**STREETS**
HISNE STEVILKE	**HOUSE NUMBERS**
VZOREC	**SAMPLE**
OSEBE	**PERSONS**
DRUZINE	**FAMILIES**
ŠOLE	**SCHOOLS**
DEJAVNOSTI	**ACTIVITIES**
POKLICI	**OCCUPATIONS**
POKLICI_SKP	**OCCUPATIONS_SCO**
SKP	STANDARD CLASSIFICATION OF OCCUPATIONS
OBCDRZ	
OBC	MUNICIPALITIES
DRZ	COUNTRIES
DRZAVE	**COUNTRIES**
CRPBPOZ	
CRP	CENTRAL-POPULATION-REGISTER
BPOZ	DATABASE-OF-PERSONS-IN-EMPLOYMENT

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