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CENSUS QUALITY AND DISCLOSURE CONTROL

The Slovene example how to improve the census count in a register-based census

Note by the Statistical Office of the Republic of Slovenia

I. INTRODUCTION

1. The paper focuses on the two main activities which took place in 2007 and 2008 at the Statistical Office of the Republic of Slovenia in order to improve the census count in the register-based Census of Population and Housing in Slovenia in 2011. The first activity was focused on the identification of potential so-called ″administrative survivors″ in the Central Population Register (hereinafter CPR) among population aged 80 years or over. The second activity was the introduction of the census usual residence concept in the quarterly population statistics.

2. Due to the ageing of populations in the developed countries and the increase in the number of the persons aged 80 or over there is a tendency among national statistical institutes to disseminate also the population by the oldest age-groups (90 or more, 100 or more) and even more, to cross-tabulate these age groups with socio-economic topics. It is well known that the uncertainty and unreliability of the population estimates and population counts are higher for the oldest age-groups. Therefore at Slovene national statistical institute the analysis of potential ″administrative survivors″ in the age group 80 or over was done in order to improve the quality of the census count at the 2011 register-based census. On the basis of several analyses estimations were made that the centenarians in the quarterly population statistics are overestimated by about 15-20 per cent and the nonagenarians by about 2-3 per cent.

3. The Statistical Office of the Republic of Slovenia has been following the Nordic model of wide and comprehensive use of administrative data for a long time. Many administrative registers that are now kept by other authorities were set-up and for some time also kept by the Statistical Office. This fact presents a significant advantage for the Statistical Office, since there is still a deep knowledge of the conceptual syntax of these registers at our office and it is natural that we still widely use these registers for different statistical purposes. While the last Slovenian Census of Population and Housing was still a combined one, based on combining data from registers and from conventional field survey, the next one in 2011 is already planned to be fully register-based. At this stage we are still facing some quite demanding challenges which we have to overcome as a precondition for the implementation of such a census, but we hope that these problems will be successfully solved and that the ambitious plan will be fulfilled.

4. The use of administrative data, especially data kept in the registers of different types, is becoming more and more popular in different fields of official statistics. Since administrative data have already been used for a long time in some parts of the statistical processes such as sampling frame construction process or calibration procedures, in recent years this use has rapidly been widened to the use of administrative data as a direct data source[1]. The housing and population census as probably the most costly and the most burdensome statistical survey is of course no exception in these processes. In the last decade we have faced a vast number of activities in different statistical offices aiming at developing the adequate environment and efficient processes for compiling as much census data as possible from the already existing administrative sources. The leading role in these processes certainly belongs to the Nordic countries, where the process of moving from a conventional to a completely register-based census has almost finished.

5. Similarly to traditional censuses, some errors in the data are unavoidable also in a register-based census system. Errors in the data in a register-based census system are in many ways different than in traditional censuses and originate mainly from the inconsistencies in administrative and statistical sources. Most inconsistencies are due to different reference dates/periods of the sources and due to different maintenance methodologies of the sources linked for the purpose of censuses.

6. In order to improve the census count in Slovenia (if we can still talk about the count in the register-based census system!), two main activities started and were performed in 2007-2008. The first one was the identification of potential so-called ˝administrative survivors˝ in the Central Population Register and the second one was the introduction of the (census) usual residence concept in quarterly population statistics.

7. In the paper the abovementioned activities are presented as an example that much can be done in advance before the register-based census in order to assure a high quality of the census count. Since all social surveys have the tendency to disseminate population also for age groups over 80, 90 and 100 and to cross-tabulate these age groups with other socio-economic topics, it seemed necessary to investigate the quality of the data on population at ages over 80.

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[1] Oblak Flander, Seljak, Quality Assessment of the Register-Based Slovenian Census 2011, URL: http://unstats.un.org/unsd/censuskb/Article.aspx?id=10403

II. THE STUDY OF THE ˝ADMINISTRATIVE SURVIVORS˝[2] AMONG SLOVENE CENTENARIANS, NONAGENARIANS AND OCTOGENARIANS

A. Why study centenarians?

8. Among other reasons (mostly connected to the study of longevity), the centenarians (and also nonagenarians) represent a small population group but are one of the fastest growing population groups in more or less all developed countries. James Vaupel of the Max Planck Institute for Demographic Research and Bernard Jeune of the University of Southern Denmark found out that "the number of persons in a country achieving the century mark in a given year is about double the number achieving that milestone 10 years earlier, and that it would seem, by extension, that the number of centenarians in a country doubles with each decade"[3,4]. Slovenia is not an exception in this context. At the 2002 Census of Population centenarians represented 0.003 per cent of the total population of Slovenia and at the end of 2008 0.008 per cent. Slovenia has been faced with an intensive increase in the number of centenarians in the population since the mid 1990s. Between 1995 and 2007 the average yearly growth of the number of centenarians was 14.4 per cent and has been constant with the exception of the year 2000. In the last ten years alone the number of centenarians increased by threefold (and has not only doubled!), the recorded average population growth of centenarians was 13.1 per cent, while it was 0.2 per cent for the whole population. As in other countries also in Slovenia the growth of the number of centenarians is mostly female dominated. "This disproportionate share of women aged 100 and over occurs because death rates are higher for men than women at virtually every age. Although both women and men have experienced dramatic improvements in mortality at the oldest ages over the last few decades, gains for males have typically been smaller than those for females"[5] (see Figure 1 in Annex).

9. The data analysis since the 1980s has shown that the emergence of centenarians is not a new phenomenon in Slovenia; however, there is a question of actual longevity in Slovene society. The research question was: Is it possible that the growth of the number of centenarians is only a fact of so-called ˝administrative survivors˝ in the administrative records, which represents the basic data source for population statistics?

10. A comparison with other countries on the emergence of centenarians was difficult since statistics on the age groups over 100 years of age have been introduced in the statistical

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[2] Under this expression the persons who haven't been removed from the official administrative sources (i.e. CPR) but should be due to emigration, death, etc., are considered, which are used as a source for the population statistics.

[3] This assertion was based on the data from 10 European countries and Japan.

[4] Vaupel, J. W in Jeune, B., 1995. The Emergence of Proliferation of Centenarians. Exceptional Longevity: From Prehistory to Present – Monographs on Population Ageing, 2. Odense, Odense University Press.

[5] Vaupel, J. W., 1997. Trajectories of Mortality at Advanced Ages. V: Between Zeus and the Salmon : The Biodemography of Longevity. National Research Council, National Academy Press, Washington, D. C. Pg. 17-37.

dissemination in many countries only in the last decade. In literature and on websites the estimations and not the real data on centenarians are predominant. A valuable source of data on centenarians is the Kannisto-Thatcher database[6]. For a more precise comparison whether the Slovene growth of the number of centenarians is really that extreme, the example of the growth of the number of centenarians in Denmark was taken. Denmark seemed to be suitable for this comparison as Denmark and Slovenia are in the group of countries with a wide use of administrative sources for statistical purposes. (See Figure 2 in Annex)

11. Data analysis for Slovenia and Denmark in the period of 1999-2008 (as of 1 January) showed that the low average annual growth of the population is significant for both countries (0.1 per cent in Denmark and 0.2 per cent in Slovenia), while the average annual growth of centenarians was much higher (4.4 per cent in Denmark and 13.1 per cent in Slovenia, respectively). The average annual growth of the number of centenarians was lower in Denmark than in Slovenia but the growth of the number of centenarians is more intensive than the growth of the population in both countries.

12. Although the population of Slovenia, according to the baseline variant of the EUROPOP2008[7] projections, will be increasing only until the beginning of 2020 and then start to decrease, the number of centenarians is projected to grow until the end of the period for which the projection was made (see Figure 3). The number of centenarians will be increasing rapidly until 2061 with two slight drops in 2016-2020 and 2046-2047 periods due to the lower number of children born during the First and the Second World War. The number of centenarians in Slovenia would, according to the baseline variant of the abovementioned projections, from 170 (1 January 2009) rise by almost 20 per cent until 2061. For the beginning of 2061 the number of centenarians in Slovenia is projected to be 3,297, among them 78.7 per cent women.

13. The actual existence of the oldest person in Slovenia is verified at the administrative units (local administrative authorities). At the Statistical Office of the Republic of Slovenia the existence of centenarians in the data was proved by linking of individual records stored in selected databases. Individual records from the CPR, which represents the source for the population statistics, were linked with data on people receiving pensions. For checking the data quality also data collected with the 2002 Census of Population were used.

B. The number of centenarians, nonagenarians and octogenarians in Slovenian statistics – the reflection of the reality?

14. Since the last Census of Population and Housing in Slovenia in 2002 was conducted on the basis of a combined method (data partly obtained from administrative and statistical sources and in addition field enumeration was conducted), the census data are very valuable and offer a

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[6] Kannisto-Thatcher Database on Old Age Mortality at the Max Planck Institute for Demographic Research. URL: http://www.demogr.mpg.de/data bases/ktdb/introduction.htm.

[7] Baseline variant of the Eurostat projections of the population for Slovenia by sex and age, 2008-2060, EUROPOP2008. SI-STAT data portal of the Statistical Office http://www.stat.si/pxweb/Database/Demographics/05_population/07_05197_projections/07_05197_projections.asp

unique opportunity for the quality check of the administrative sources used for population statistics in Slovenia. For the census reference date 31 March 2002 in Slovenia two datasets of population data were published – the population data from the census count and the data on population obtained from the administrative sources only.

15. In the census data 55 centenarians (among them two persons with unknown citizenship) and in the quarterly population statistics 75 centenarians were found (among them two persons with foreign citizenship). In general, it could be concluded that the majority of the difference in the number of centenarians in the census and quarterly population statistics could be explained by methodological differences. At the 2002 Census of Population and Housing the concept of one year usual residence was implemented, while in the quarterly population statistics a person was included in the population on the day they registered residence in Slovenia (regardless of the length of actual stay in the country). Therefore the recorded difference (and explained to the public) in the total population between the census and quarterly population statistics was 1.5 per cent in favour of the quarterly population statistics. But the difference in the number of centenarians recorded at the census and in quarterly population statistics was 26.7 per cent in favour of the quarterly population statistics. This raised a question of what has been happening in the quarterly data on population.

16. Since the absolute number of centenarians in Slovenia is small, data analysis and quality check was extended also to the number of nonagenarians and octogenarians. The difference recorded between census data and quarterly population statistics for these two age groups together was even lower (0.9 per cent) than for the population in total (1.5 per cent). The difference was bigger in the age group 90-99 (2.1 per cent).

Table 1
Centenarians – comparison of figures from the Census of population 2002 and quarterly population statistics for selected age groups, 31 March 2002, Slovenia

Data source and age group	Number	Difference (in %)
Census of population - total population	1,964,035	**1.5**
Quarterly population statistics - total population	1,994,861	
Census of population – centenarians (population aged 100 or over)	55	**26.7**
Quarterly population statistics–centenarians (population aged 100 or over)	75	
Census of population - population aged 80 or over	50,570	**0.9**
Quarterly population statistics - population aged 80 or over	51,044	
Census of population - population aged 80-99	50,515	**0.9**
Quarterly population statistics - population aged 80-99	50,969	
Census of population - octogenarians (population aged 80-89)	43,616	**0.7**
Quarterly population statistics - octogenarians (population aged 80-89)	43,927	
Census of population - nonagenarians (population aged 90-99)	6,899	**2.1**
Quarterly population statistics - nonagenarians (population aged 90-99)	7,042	

Sources: Census of Population, Households and Housing in Slovenia in 2002, Statistical Office of the RS; Population of Slovenia, 31 March 2002, Rapid Reports, Statistical Office of the RS.

17. From Table 1 it is evident that the difference in the number of population from the 2002 Census and quarterly population statistics is higher for higher age groups - nonagenarians and centenarians, while the difference in the number of octogenarians is even lower than for population in total.

18. The lower difference could be explained with the stability of the population at higher ages, if we talk from the methodological point of view. Not many people aged 80-89 enumerated in the 2002 Census (and present also in the CPR) were at the stage of data processing excluded from the population (for example due to long-term emigration). Of course, for some it was found with the field enumeration that they don't actually exist on the territory of Slovenia due to emigration in the past, due to death, etc. The difference in the number of population between the census and quarterly population statistics among nonagenarians and especially centenarians seemed to be most likely due to errors in the CPR.

C. Data-linkage – the method used to check the actual existence of persons (inhabitants of Slovenia) on the territory of Slovenia

19. To check the actual existence of persons (inhabitants of Slovenia) aged 100 years or over and in addition of persons 80 years old or over (separately for octogenarians and for nonagenarians) the data-linkage among various databases was used.

20. Firstly the comparison of individual data in the 2002 Census and in quarterly population statistics was done, since both surveys refer to the same reference date (31 March 2002). The advantage of this comparison was that the census was conducted on the basis of the combined method – before the census a pre-census database was established, in which the frame of persons to be enumerated at the census on the basis of the CPR data was created. To the persons in the pre-census database also some attributes from the CPR and other administrative sources were added. Persons included in the pre-census database were in addition contacted with field enumeration (door-to-door interviews) at the time of the census count. With this action for all persons in the CPR information was collected whether they live at the address as registered in the CPR, whether they are present on the territory of Slovenia or whether the person died, emigrated, etc.

21. The disadvantage of the comparison with the help of the data-linkage was that the comparison of individual records was possible for Slovene citizens and for persons with unknown citizenship only, since data on foreigners for quarterly population statistics were only available in aggregated form to the Statistical Office of the Republic of Slovenia at that time.

22. At the 2002 Census there were no centenarians with foreign citizenship but two were with unknown citizenship, while in the quarterly population statistics there were two centenarians with foreign citizenship. For example, among nonagenarians and octogenarians the number of foreigners was higher: at the 2002 Census among 43,616 octogenarians 210 were foreigners but they represented only 0.5 per cent of all octogenarians, and furthermore for 95 octogenarians counted in the population of Slovenia the citizenship was unknown. In quarterly population statistics there were 242 (0.6 per cent) foreigners among octogenarians. Among 6,899 nonagenarians at the 2002 Census 35 were foreigners and they represented 0.4 per cent of all

nonagenarians. There were further 27 persons with unknown citizenship, while in the quarterly population statistics there were 66 (9.4 per cent) foreigners among nonagenarians. See Table 2.

Table 2
Centenarians, nonagenarians and octogenarians – data-linkage of the 2002 Census and quarterly population statistics for Slovene citizens and population with unknown citizenship, 31 March 2002

Statistical survey	Population				Linked records (of population - citizens of the RS and persons with unknown citizenship)	Non-linked records
	total	Slovene citizens	foreigners	unknown citizenship		
	Centenarians					
Census of population	55	53	0	2	53	20
Quarterly population stat.	75	73	2	0		
	Nonagenarians					
Census of population	6,899	6,837	35	27	6,832	147
Quarterly population stat.	7,042	6,976	66	0		
	Octogenarians					
Census of population	43,616	43,311	210	95	43,226	459
Quarterly population stat.	43,927	43,685	242	0		

Sources: Dissemination database of the Census of Population, Households and Housing in Slovenia in 2002, Statistical Office of the RS; Population of Slovenia, 31 March 2002, Rapid Reports, Statistical Office of the RS.

23. Among centenarians 53 records linked. Two records couldn't link because there were no records of persons with foreign citizenship in the database of individual records for the quarterly population statistics. So of total 73 individual records among centenarians 20 did not link. Among nonagenarians 147 and among octogenarians 456 records did not link.

24. **Who are the persons who were not linked in the process of data-linkage?** To check who were the persons aged 80 years or over on the census reference date and were not found in the census but were found in the quarterly population statistics, data-linkage of non-linked records with the data on persons for whom information was collected with field enumeration at the 2002 Census that they had died, were abroad, were unknown at the address, etc., was conducted.

25. Among all **centenarians** in the quarterly population statistics as of 31 March 2002, the persons for whom it was found at field enumeration that they had died, were living abroad or were unknown at the address, but were counted in the quarterly population statistics, represented 12 per cent of all centenarians, all together nine persons (see Table 3). For eleven centenarians who were included in the quarterly population statistics as of 31 March 2002, and represented

14.7 per cent of all centenarians, it was not possible to find out whether they were really present on the territory of Slovenia or not. On the basis of this analysis it could be possible with great reliability to make an assertion that the number of centenarians in the quarterly population statistics as of 31 March 2002 in Slovenia was overestimated by 12 per cent. For additional 14.7 per cent of centenarians the actual presence on the territory of Slovenia remained unexplained. Overall it could be estimated that the number of centenarians in quarterly population statistics in Slovenia as of 31 March 2002 was overestimated by 15-20 per cent. Non-linked records among **octogenarians** represent 1.1 per cent of all octogenarians recorded in the quarterly statistics as of 31 March 2002, while among **nonagenarians** 2.1 per cent. For 91.7 per cent of non-linked records among octogenarians with field enumeration (door-to-door interviews) the information was found. For 57.3 per cent of these octogenarians the information was collected that they were whether permanently or temporarily abroad, 52.2 per cent were not found because they were deceased and 16.2 per cent of them were unknown at the address. For 95.9 per cent of non-linked records of nonagenarians the information was found with field enumeration. It is interesting that among non-linked nonagenarians the percentage of deceased (41.1 per cent) was higher than the percentage of those for whom the information that they were (temporarily or permanently) abroad (36.9 per cent) was higher.

Table 3

Results of data-linkage of non-linked records of centenarians, nonagenarians and octogenarians between the 2002 Census and quarterly population statistics for Slovene citizens and population with unknown citizenship linked with the database on enumerated persons at the 2002 Census, 31 March 2002

Non-linked records by type	Among centenarians	Among nonagenarians	Among octogenarians
Total	**20**	**147**	**459**
For persons at the 2002 Census with field enumeration the following information collected:	**9**	**141**	**421**
person at another address	0	0	6
person unknown	5	31	68
person died	1	58	106
person abroad – more than 1 year	0	25	127
person temporarily abroad	3	27	114
For persons no information collected with field enumeration at the 2002 Census	**11**	**6**	**38**

Sources: Dissemination database of the Census of Population, Households and Housing in Slovenia in 2002, Statistical Office of the RS; Database on enumerated persons at the Census of Population, Households and Housing in Slovenia in 2002, Statistical Office of the RS.

26. In the second step a check of the existence of persons aged 80 years or over on the territory of Slovenia was done by linking data of individual records stored in selected databases. Individual records from the CPR, which represents the source for the population statistics, were linked with data on people receiving pensions. Since Slovenia is a welfare state, almost everybody at later ages has the right to one of the pensions which exist in Slovenia (there are many kinds of pensions in Slovenia: old-age pension, disability pension, survivors pension, part-pension, state pension, allowance for help and care, etc.) Therefore it is almost 100per cent sure

that a person aged 80 or over included in the population of Slovenia (with a permanent or temporary residence in Slovenia) would appear in the database of people receiving pensions or pension-related benefits. The exceptions are foreigners. Not all of them are entitled to receive a pension or pension related benefits in Slovenia. Therefore in the process of data-linkage the records on foreigners were counted as linked record.

27. Individual data on people receiving pensions were available for 2005, 2006 and 2007 and were linked with individual records on citizens included in population statistics as of 31 December 2005, 2006 and 2007. The results of this data-linkage are shown - separately for centenarians, nonagenarians and octogenarians - in Tables 4, 5 and 6.

Table 4
Linked and non-linked records of centenarians, nonagenarians and octogenarians – data-linkage of the database of individual records on people receiving pensions in 2005 with population of the Republic of Slovenia as of 31 December 2005

	Number	**Proportion (in %)**
	centenarians	
Total	**117**	**100.0**
foreigners	2	1.7
Linked records	85	72.6
Linked records (foreigners counted as linked records)	87	74.4
Non-linked records	30	**25.6**
	nonagenarians	
Total	**7,801**	**100.0**
foreigners	48	0.6
Linked records (including foreigners, receivers of pensions =7)	7,421	95.1
Linked records (including all foreigners - receivers and not receivers of pensions)	7,462	95.7
Non-linked records	339	**4.3**
	octogenarians	
Total	**56,146**	**100.0**
foreigners	304	0.5
Linked records (including foreigners, receivers of pensions=67)	54,642	97.3
Linked records (including all foreigners - receivers and not receivers of pensions)	54,879	97.7
Non-linked records	1,267	**2.3**

Sources: Population of Slovenia, 31 December 2005, Statistical Office of the RS; Database of individual records on people receiving pensions, 2005.

Table 5

Linked and non-linked records of centenarians, nonagenarians and octogenarians – data-linkage of the database of individual records on people receiving pensions in 2006 with population of the Republic of Slovenia as of 31 December 2006

	Number	Proportion (in %)
	centenarians	
Total	**139**	**100.0**
foreigners	2	1.4
Linked records	103	74.1
Linked records (foreigners counted as linked records)	105	75.5
Non-linked records	34	**24.5**
	nonagenarians	
Total	**7,237**	**100.0**
foreigners	33	0.5
Linked records (including foreigners, receivers of pensions =5)	6,891	95.2
Linked records (including all foreigners - receivers and not receivers of pensions)	6,919	95.6
Non-linked records	318	**4.4**
	octogenarians	
Total	**60,649**	**100.0**
foreigners	353	0.6
Linked records (including foreigners, receivers of pensions =75)	59,077	97.4
Linked records (including all foreigners - receivers and not receivers of pensions)	59,355	97.9
Non-linked records	1,294	**2.1**

Sources: Population of Slovenia, 31 December 2006, Statistical Office of the RS; Database of individual records on people receiving pensions, 2006.

Table 6

Linked and non-linked records of centenarians, nonagenarians and octogenarians – data-linkage of the database of individual records on people receiving pensions in 2007 with population of the Republic of Slovenia as of 31 December 2007

	Number	Proportion (in %)
	centenarians	
Total	**160**	**100.0**
foreigners	4	2.5
Linked records	118	73.8
Linked records (foreigners counted as linked records)	122	76.3
Non-linked records	38	**23.7**
	nonagenarians	
Total	**6,662**	**100.0**
foreigners	31	0.5

	Number	Proportion (in %)
Linked records (including foreigners, receivers of pensions =3)	6,355	95.4
Linked records (including all foreigners - receivers and not receivers of pensions)	6,383	95.8
Non-linked records	279	**4.2**
	octogenarians	
Total	**65,345**	**100.0**
foreigners	367	0.6
Linked records (including foreigners, receivers of pensions =81)	63,671	97.4
Linked records (including all foreigners - receivers and not receivers of pensions)	63,957	97.9
Non-linked records	1,388	**2.1**

Sources: Population of Slovenia, 31 December 2007, Statistical Office of the RS; Database of individual records on people receiving pensions, 2007.

28. The analysis of data obtained by the data-linkage of above mentioned databases of population aged 80 or more and pension receivers for 2005, 2006 and 2007 showed that among centenarians the percentage of non-linked records was between 23.7 per cent and 25.6 per cent, among nonagenarians the percentage of non-linked records was more than five times lower (between 4.2 and 4.4 per cent) and among octogenarians even lower (between 2.1 per cent and 2.3per cent). The results showed again that for centenarians data in the regular population statistics are less reliable and that also some improvements should be made in the data for nonagenarians.

29. The estimations made on the basis of the results were that the number of centenarians in quarterly population statistics is overestimated by 15-20 per cent and the number of nonagenarians by around 2-3 per cent. For octogenarians it would be difficult to say with great certainty that the overestimation in the annual population statistics is by around 1 per cent since the analysis is also a subject of random errors. **However, the data analysis with the help of data-linkage showed that Slovenia has some problems with overcounting in the age groups 90 or more and especially among centenarians.**

30. Since the Statistical Office of the Republic of Slovenia has not been in charge of the maintenance of the CPR since 1999 (and therefore has no direct influence on the quality and stability of the main source for population statistics), a message on the findings of the present analysis has been sent to the Ministry of the Interior, which is at present in charge of the maintenance of the CPR. On the basis of the findings they through regular administrative procedures already started to check in 2008 the real existence of the centenarians on the territory of Slovenia and improvement has already been noticed in the data on population as of 31 December 2008.

III. THE INTRODUCTION OF THE CENSUS CONCEPT OF USUAL RESIDENCE IN THE QUARTERLY POPULATION STATISTICS

31. Since the data sources at the time of the 2002 Census did not allow implementing the concept of the usual residence (at that time with the criteria of one year actual stay) in the quarterly population statistics, the differences between population data from the census and quarterly population statistics appeared. The Statistical Office of the Republic of Slovenia has been striving since then to implement the usual residence concept in the quarterly population statistics, so as not to be in the same situation at the 2011 Census as it was after the 2002 Census when two datasets of population figures as of 31 March 2002 were disseminated.

32. Two major changes happened since the last census in Slovenia – the first was that the Ministry of the Interior of Slovenia in 2008 concluded the project of linking all of its administrative sources into one coherent system (for the population statistics it was essential that the CPR was integrated with the Register of Foreigners) and the second one was that at the EU level in addition to the CES Recommendations for the 2010 Censuses of Population and Housing in July 2007 the Regulation of the European Parliament and the Council on Community statistics on migration and international protection was accepted (hereinafter the Regulation on Migration Statistics). This regulation brought a modified concept of the definition of usual residence in comparison to the concept at the last round of censuses. The concept of defining the usual residence includes not only actual but also intended stay.

33. Those two changes enabled the Statistical Office of the Republic of Slovenia to start with the preparation of the change in the statistical definition of the population of Slovenia (and also of migration data and in data on vital events) already in 2007.

34. The new statistical definition was introduced initially for the data as of 31 December 2008. To offer the users at least some comparable data, data as of 31 December 2007 according to the new statistical definition of population were published at the same time. By the end of 2009 also data for 31 December 2006 and 2005 will be prepared and published according to the new statistical definition of population.

35. Minor corrections will still be needed in 2010 in the population data to achieve a necessary coherence with the census family and household data. The Statistical Office of the Republic of Slovenia prepared the strategy how to solve these problems already in 2009.

IV. CONCLUSIONS

36. Most of the National Statistical Institutes within the European Statistical System have already started intensive work on the preparations for the next 2010 population and housing census round. Following the “Nordic example”, most of the countries are planning to use as much as possible of already existing administrative data in the collection phase of the census. Slovenia is one of the countries planning to carry out a fully register-based census in 2011.

37. However, before the first register-based census many preparatory works have to be done. The basic thing is that the statisticians have be sure that the census count of the census units

reflects the reality as much as possible with respect to the methodological frame to achieve the international and over-time comparability of the data collected (compiled).

38. The main conclusions drawn from the exercises completed in 2007 and 2008 at the Statistical Office of the Republic of Slovenia to improve the census count of the population of Slovenia would be that it is necessary to detect as many errors as possible in the population statistics before the census in order to achieve better consistency and quality of the data. If possible, it is necessary to communicate the errors detected in the sources with the data providers and institutions in charge of maintenance of administrative sources used for the population count (estimations).

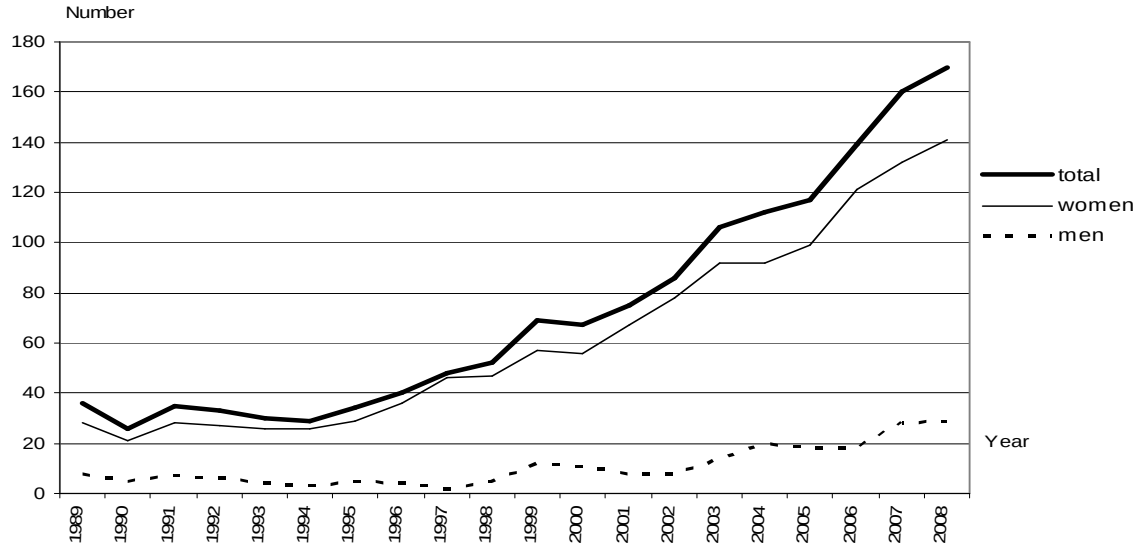
39. If methodological changes are needed to compile population statistics, this should be scheduled some years before the census to achieve stability in statistical data and to detect possible errors.

40. The data analysis showed that in general regular population statistics in Slovenia based on data from the CPR and disseminated quarterly are of good quality. The analysis of the data on the basis of data-linkage of various data sources as of 31 March 2002 and for 2005, 2006 and 2007 showed that in Slovenia the most problematic data seem to be for centenarians and partly also for nonagenarians. It was estimated that the over counting among centenarians is by about 15-20 per cent, while among nonagenarians it is by 2-3 per cent.

[ENGLISH ONLY]

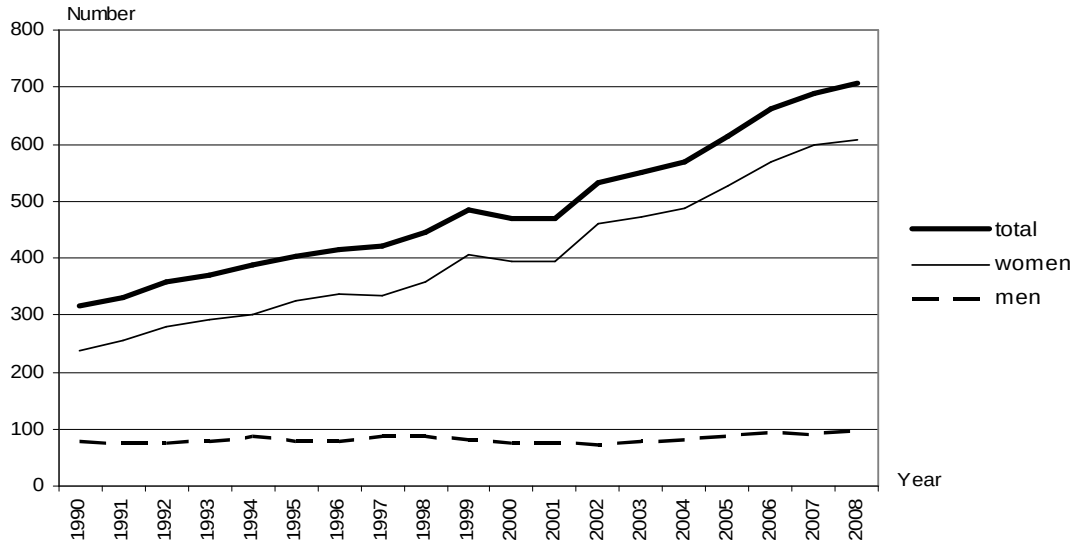
ANNEX

Figure 1. Centenarians in Slovenia by sex, 1989-2008 (31 December)



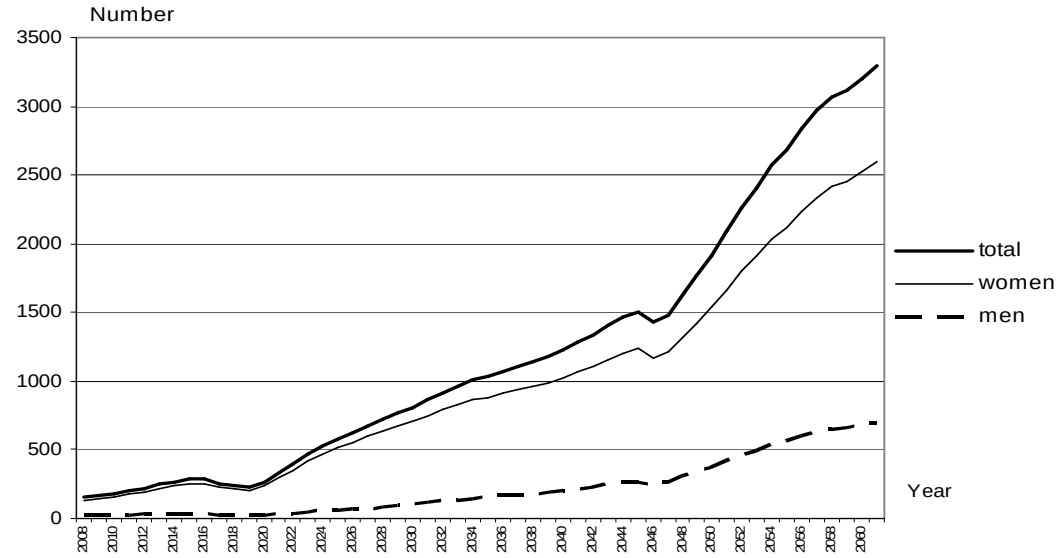
Sources: Statistical Office of the RS, Population of Slovenia by single-age groups, data sets on population of Slovenia for the 1989-2008 period as of 31 December.

Figure 2. Centenarians in Denmark by sex, 1991-2008 (1 January)



Source: Statistics Denmark, URL: http://www.dst.dk/HomeUK.aspx. (Cited on 26 October 2008)

Figure 3: Centenarians in Slovenia by sex, baseline variant of the EUROPOP2008 Projection, 2008-2061 (1 January)



Source: Baseline variant of the Eurostat projections of the population for Slovenia by sex and age, 2008-2060, EUROPOP2008.

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