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## **Economic Commission for Europe**

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### **Group of Experts on Population and Housing Censuses**

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#### **Information session on the 2010 Round of Population and Housing Censuses**

## **Overview of the 2010 round of population and housing censuses in the UNECE region**

**Note by the UNECE Secretariat**

### *Summary*

This report provides a general overview of the 2010 round of population and housing censuses in member countries of the United Nations Economic Commission for Europe (UNECE), which focus on the census methodology adopted in the various countries and in particular on alternative census methods. The paper is based on information collected in various surveys conducted within the framework of the 2010 World Population and Housing Census Programme, supplemented with information available at UNECE.

## **I. Introduction**

1. This report provides a general overview of the population and housing censuses of the 2010 round conducted in countries that are members of the UNECE. The report is based on information from various sources, including a worldwide survey conducted in 2009 by the United Nations Statistical Division (in cooperation with UNECE and Eurostat for the European region), the US Census Bureau survey conducted in 2011 in preparation for the review of the 2010 World Population and Housing Census Programme (at the February 2012 session of the United Nations Statistical Commission), and information collected by UNECE in the framework of the preparation of the UNECE Wiki page on censuses<sup>1</sup>.

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<sup>1</sup> <http://stat/platform/display/censuses/UNECE+Census+Wiki>

2. In order to compare the 2010 census round with the previous (2000) round, information from the report “Measuring Population and Housing - Practices of UNECE countries in the 2000 round of censuses” (published by UNECE in 2008<sup>2</sup>) is also presented.

## **II. Implementation of the 2010 Census Round in the UNECE region**

3. In the framework of the 2010 World Programme on Population and Housing Censuses, all countries are urged to conduct at least one population and housing census in the period from 2005 to 2014<sup>3</sup>. Table 1 presents information about the census conducted or planned in the 56 member countries of the UNECE, including the reference date<sup>4</sup>. The table shows that 50 countries out of 56 conducted a census by the end of 2011. The large majority of these countries (including all 27 member countries of the European Union) carried out the census in 2011, which was the official census year for the EU census programme. In the Former Yugoslav Republic of Macedonia, the census operations were cancelled during the data collection in September 2011.

4. Among the six UNECE countries where a census was not carried out by the end of 2011, Turkmenistan is planning to conduct the census in December 2012, Bosnia-Herzegovina and Ukraine in 2013, Georgia in 2013 or 2014, and the Republic of Moldova in 2014. In Uzbekistan (where no census was taken in the 2000 round), a “mini-census” based on 10 per cent of the population was conducted in April 2011, but there are no plans for a full census.

5. Based on the information available, it is expected that by the end of 2014 (which will be the end of the 2010 census round), a census will have been successfully conducted in all UNECE countries, with the exceptions of the Former Yugoslav Republic of Macedonia and Uzbekistan. In Bosnia-Herzegovina, Germany, Iceland, San Marino, and Sweden a census is being conducted in the 2010 round after no census having been conducted in the 2000 round. Therefore, the number of UNECE countries conducting a census in the 2010 round will be significantly higher than in the 2000 round.

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<sup>2</sup> “Measuring Population and Housing - Practices of UNECE countries in the 2000 round of censuses” (2008); United Nations Sales No. E.07.11.E.15;  
[http://www.unece.org/stats/publications/Publication\\_on\\_2000\\_censuses.pdf](http://www.unece.org/stats/publications/Publication_on_2000_censuses.pdf)

<sup>3</sup> Economic and Social Council resolution 2005/13.

<sup>4</sup> This table was extracted from a larger table available on the UNECE Census Wiki page (<http://www1.unece.org/stat/platform/display/censuses/2010+Population+Census+Round>) which is regularly updated and includes copies of the census forms, technical papers, reports, and links to the national census websites.

**Table 1. Census date and method for 2010 census round – UNECE countries**

<b>Country</b>	<b>Census date</b>	<b>Census method</b>
Albania	01-Oct-2011	Traditional
Andorra	31-Dec-2011	Register-based
Armenia	12-Oct-2011	Traditional
Austria	31-Oct-2011	Register-based
Azerbaijan	13-Apr-2009	Traditional
Belarus	14-Oct-2009	Traditional
Belgium	01-Jan-2011	Register-based
Bosnia-Herz.	<b>01-Apr-2013</b>	Traditional
Bulgaria	10-Mar-2011	Traditional
Canada	10-May-2011	Traditional
Croatia	31-Mar-2011	Traditional
Cyprus	01-Oct-2011	Traditional
Czech Republic	26-Mar-2011	Combined (reg. + enum.)
Denmark	01-Jan-2011	Register-based
Estonia	31-Dec-2011	Combined (reg. + enum.)
Finland	31-Dec-2010	Register-based
France	01-Jan-2011	Rolling census
Georgia	<b>(2013/14)</b>	Traditional
Germany	09-May-2011	Combined (reg. + enum. + surv.)
Greece	16-Mar-2011	Traditional
Hungary	01-Oct-2011	Traditional
Iceland	31-Dec-2011	Combined (reg. + survey data) No questionnaire
Ireland	10-Apr-2011	Traditional
Israel	27-Dec-2008	Combined (reg. + survey)
Italy	23-Oct-2011	Combined (reg. + enum.)
Kazakhstan	25-Feb-2009	Traditional
Kyrgyzstan	24-Mar-2009	Traditional
Latvia	01-Mar-2011	Combined (reg. + enum.)
Liechtenstein	31-Dec-2010	Combined (reg. + enum.)
<b>Country</b>	<b>Census date</b>	<b>Census method</b>
Lithuania	01-Mar-2011	Combined (reg. + enum.)
Luxembourg	01-Feb-2011	Traditional
Malta	20-Nov-2011	Traditional
Monaco	09-Jun-2008	Traditional
Montenegro	31-Mar-2011	Traditional
Netherlands	01-Jan-2011	Combined (reg. + survey data) No questionnaire
Norway	19-Nov-2011	Register-based
Poland	31-Mar-2011	Combined (reg. + enum. + survey)
Portugal	21-Mar-2011	Traditional
Rep. of Moldova	<b>1-Apr-2014</b>	Traditional
Romania	22-Oct-2011	Traditional
Russian Fed.	14-Oct-2010	Traditional
San Marino	07-Nov-2010	Traditional
Serbia	31-Sep-2011	Traditional
Slovakia	21-May-2011	Traditional
Slovenia	01-Jan-2011	Register-based
Spain	01-Nov-2011	Combined (reg. + enum.)
Sweden	31-Dec-2011	Register-based
Switzerland	31-Dec-2010	Combined (reg. + survey)
Tajikistan	01-Oct-2010	Traditional
The FYR of Macedonia	<b>31-Sep-2011 (cancelled)</b>	Traditional
Turkey	02-Oct-2011	Combined (reg. + survey)
Turkmenistan	<b>15-Dec-2012</b>	Traditional
Ukraine	<b>2013</b>	Traditional
United Kingdom	27-Mar-2011	Traditional
United States	01-Apr-2010	Trad. enum. with yearly updates
Uzbekistan	<b>01-Apr-2011</b>	<b>Mini-census (10% of pop.)</b>

### III. Census Methodology Adopted in the 2010 and 2000 Rounds

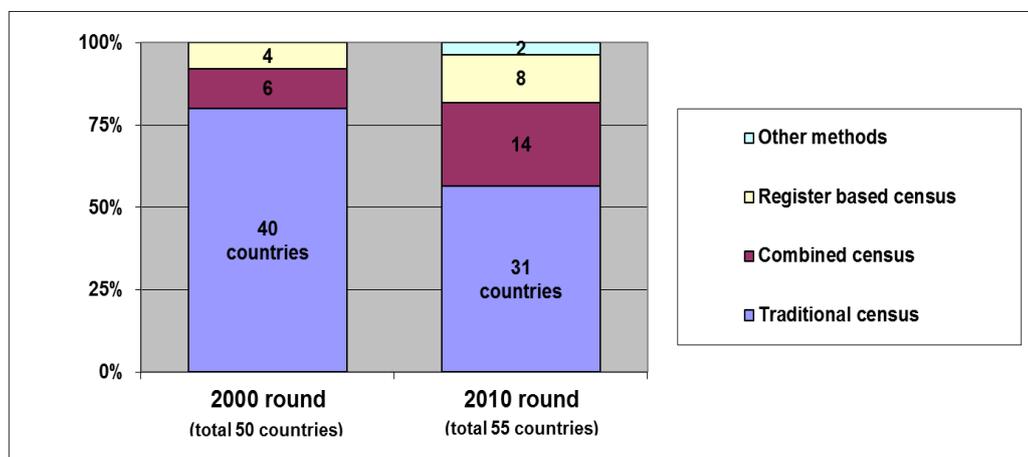
6. In addition to the reference date, Table 1 also presents information on the census methodology adopted in the different UNECE countries. For this purpose, three broad categories of census methodology are considered, based on the main source of data used for the population count:

- a) The traditional census, where data are collected in the field through a full enumeration conducted in a relative short period of time, possibly with limited use of data from registers in support of the enumeration;
- b) The register-based census, where the census is based exclusively on data from registers and administrative sources;
- c) The combined census, where data from registers are used in combination with other sources, that may include a full field enumeration or an ad hoc sample survey for the census; some countries conduct a combined census without questionnaire, using data from registers and existing surveys (such as LFS).

7. In addition, two methods that do not fall in any of the categories above are reported for the respective countries: the so called “rolling census” in France, and the traditional enumeration with yearly updates in the United States.<sup>5</sup>

8. Based on the information on the 55 UNECE countries where it is expected that a census will be carried out by the end of 2014, the traditional approach was adopted in the 2010 round by only 31 countries (56% of the total). This is a significant decrease compared to the 2000 census round, when 40 countries (80% of the total) conducted a traditional census (see figure 1).

**Figure 1. Census methods used in UNECE countries in 2000 and 2010 census rounds**



9. Among the alternative methods, the combined census was adopted by 14 countries in the 2010 round (25%) against six countries in the 2000 round (12%), and the register-based census by eight countries in the 2010 round (15%) against four countries in the 2000

<sup>5</sup> A general description of the census methodological approaches presented in this section is available in Appendix II to the “Conference of European Statisticians Recommendations for the 2010 Censuses of Population and Housing” (2006); United Nations publication ECE/CES/STAT/NONE/2006/4. Available on the internet at: [http://www.unecce.org/stats/publications/CES\\_2010\\_Census\\_Recommendations\\_English.pdf](http://www.unecce.org/stats/publications/CES_2010_Census_Recommendations_English.pdf)

round (8%). In total, the number of countries using registers for the census has more than doubled, from 10 in the 2000 round to 22 in the 2010 round.

10. Table 2 presents in detail the UNECE countries by census method adopted in the 2000 and 2010 rounds, and allows identification of those countries that changed methodology between the two census rounds. In the 2010 census round, eleven countries moved away from the traditional census. The majority of them (eight countries) adopted a combined census. Austria moved directly from the traditional census to the register-based census, while France and the United States developed alternative methods that make no use of data from registers (see para. 7 above).

11. Of the six countries that conducted a combined census in the 2000 round, Belgium and Slovenia moved to a register-based census in the 2010 round, while four countries also conducted a combined census in the 2010 round (Latvia, Netherlands, Spain and Switzerland).

**Table 2. Countries by census method in 2000 and 2010 rounds – UNECE countries**

		Census method in 2010 round				
		Traditional	Combined	Register-based	Other	TOTAL
<b>Census method in the 2000 round</b>	<b>Traditional</b>	28 Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Canada, Croatia, Cyprus, Greece, Georgia, Hungary, Ireland, Kazakhstan, Kyrgyzstan, Luxembourg, Malta, Monaco, Montenegro, Portugal, Rep. of Moldova, Romania, Russian Fed., Serbia, Slovakia, Tajikistan, The FYR of Macedonia, Turkmenistan, Ukraine, United Kingdom	8 Czech. Rep. Estonia Israel Italy Lichtenstein Lithuania Poland Turkey	1 Austria	2 France United States	<b>40</b>
	<b>Combined</b>	0	4 Latvia Netherlands* Spain Switzerland	2 Belgium Slovenia	0	<b>6</b>
	<b>Register-based</b>	0	0	4 Andorra Denmark Finland Norway	0	<b>4</b>
	<i>No census in 2000 round</i>	2 <i>Bosnia-Herzegovina San Marino</i>	2 <i>Germany Iceland*</i>	1 <i>Sweden</i>	0	<b>5</b>
	<b>TOTAL</b>	<b>31</b>	<b>14</b>	<b>8</b>	<b>2</b>	<b>55</b>

Legend: 

Same method in 2000 and 2010 rounds	Different method in 2000 and 2010 rounds
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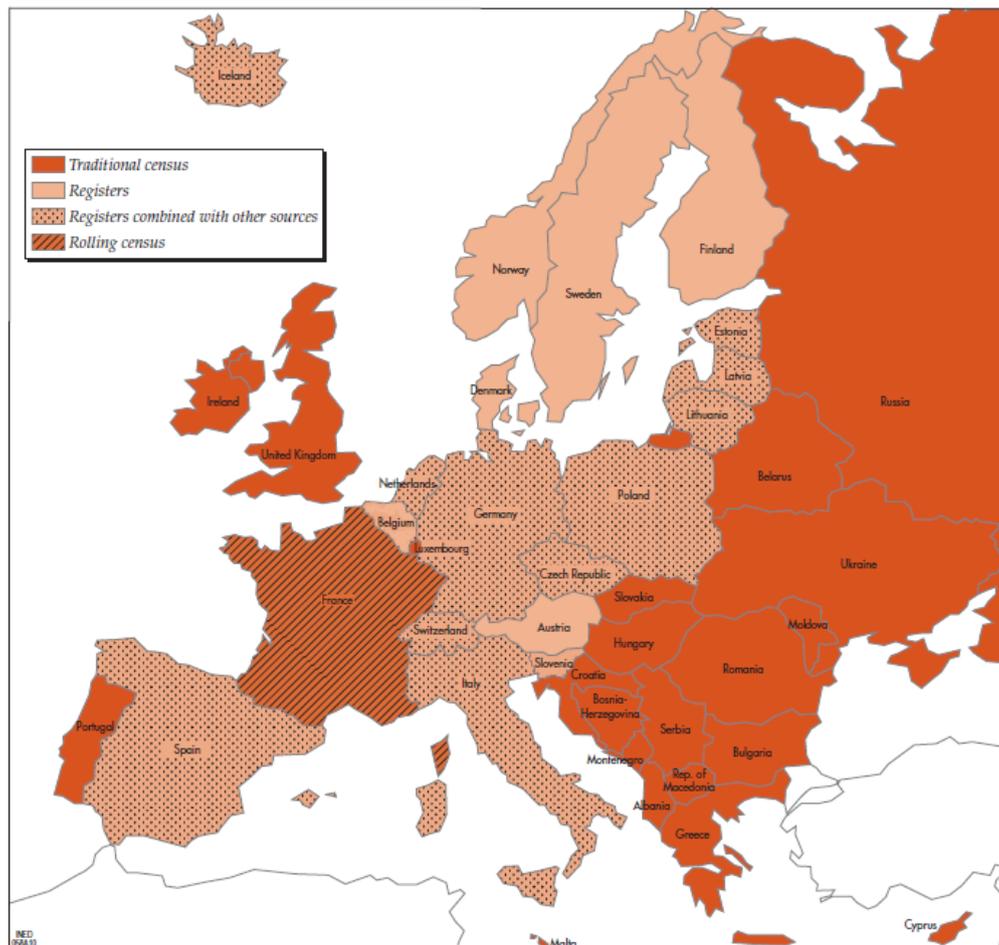
\* In Iceland and the Netherlands, a combined census without questionnaire was carried out, using data from registers and existing surveys.

12. The data show that the trend of moving away from the traditional census is particularly strong in the EU and EFTA countries. In fact, considering the 27 countries that are currently members of the EU, only 11 countries conducted a traditional census in 2011

(there were 18 in the 2000 census round), nine countries conducted a combined census, six countries a register-based census, and France the rolling census. All countries that conducted a register-based or combined census in the 2010 round belong to the EU or EFTA, with the exceptions of Israel and Turkey.

13. In Eastern and South-Eastern Europe, the Caucasus and Central Asia, all countries conducted a traditional census in the 2010 round. This can be observed in figure 2, which shows a map of Europe by the census methods used by countries for the 2010 round.

**Figure 2. Methods used by European countries for the 2010 round population census<sup>6</sup>**



<sup>6</sup> Derived from a map published in the article "Census taking in Europe: how are populations counted in 2010?" (Population et Sociétés, No. 467, May 2010, INED)

## IV. Enumeration Methods

13. Various enumeration methods can be used to collect census data. In the case of register-based censuses, the enumeration is obviously based only on data from registers. For all other census types, countries may adopt different combinations of enumeration methods.

14. Table 3a presents the enumeration methods adopted by the 28 UNECE countries that selected a traditional census in the 2010 round. The majority of these countries – 18 countries including virtually all countries in Southern and Southeast Europe, the Caucasus and Central Asia - adopted face-to-face interview as the only enumeration method.

**Table 3a. Enumeration methods adopted in 2010 round (UNECE) – Traditional census**

Country	Census type	Enumeration methods:		
		Face to face interview	Self –enumeration (questionnaire)	Self-enumeration (Internet-based)
Albania	<i>Traditional</i>	x		
Armenia	<i>Traditional</i>	x		
Azerbaijan	<i>Traditional</i>	x		
Belarus	<i>Traditional</i>	x		
Bosnia-Herzegovina	<i>Traditional</i>	x		
Bulgaria	<i>Traditional</i>	x		x
Canada	<i>Traditional</i>	x	x	x
Croatia	<i>Traditional</i>	x		
Cyprus	<i>Traditional</i>	x		
Georgia	<i>Traditional</i>	x		
Greece	<i>Traditional</i>	x		
Hungary	<i>Traditional</i>	x	x	x
Ireland	<i>Traditional</i>		x	
Kazakhstan	<i>Traditional</i>	x		
Kyrgyzstan	<i>Traditional</i>	x		
Luxembourg	<i>Traditional</i>		x	x
Malta	<i>Traditional</i>	x	x	
Montenegro	<i>Traditional</i>	x		
Portugal	<i>Traditional</i>	x	x	x
Republic of Moldova	<i>Traditional</i>	x		
Romania	<i>Traditional</i>	x		
Russian Federation	<i>Traditional</i>	x		
Serbia	<i>Traditional</i>	x		
Slovakia	<i>Traditional</i>		x	x
Tajikistan	<i>Traditional</i>	x		
Turkmenistan	<i>Traditional</i>	x		
United Kingdom	<i>Traditional</i>		x	x
Ukraine	<i>Traditional</i>	x	x	

16. Five countries (Canada, Hungary, Malta, Portugal and Ukraine) adopted face-to-face interview in combination with self-enumeration by paper questionnaire. Canada, Hungary and Portugal also made possible internet self-enumeration. Luxembourg, Slovakia and the United Kingdom adopted self-enumeration by paper questionnaire or internet. Ireland adopted only self-enumeration with paper questionnaire. Bulgaria adopted internet self-enumeration and face-to-face interview.

17. Table 3b presents the enumeration methods adopted by the countries that selected an alternative census method other than the register-based census. Among the 13 countries that selected a combined census, two countries (Iceland and the Netherlands) used only data from registers and from existing sample surveys, but did not collect data in the field. The other 11 countries with a combined census adopted different combinations of enumeration methods, including face-to-face interview, self-enumeration with paper questionnaire or internet questionnaire. In the Czech Republic and Germany all these enumeration methods were used.

18. In France, the rolling census is based on self-enumeration and a paper questionnaire only. In the United States, self-enumeration with a paper questionnaire is used for the majority of the population, while face-to-face interview is used for the non-response follow up.

**Table 3b. Enumeration methods adopted in 2010 round (UNECE) – Other census methods**

Country	Census type	Enumeration methods:			
		Face to face interview	Self –enumeration (questionnaire)	Self-enumeration (Internet-based)	Registers
Czech Republic	<i>Combined</i>	x	x	x	x
Estonia	<i>Combined</i>	x		x	x
Germany	<i>Combined</i>	x	x	x	x
Iceland	<i>Combined</i>				x
Israel	<i>Combined</i>	x	x		x
Italy	<i>Combined</i>		x	x	x
Latvia	<i>Combined</i>	x		x	x
Lithuania	<i>Combined</i>	x		x	x
Netherlands	<i>Combined</i>				x
Poland	<i>Combined</i>	x		x	x
Spain	<i>Combined</i>		x	x	x
Switzerland	<i>Combined</i>		x	x	x
Turkey	<i>Combined</i>	x			x
France	<i>Rolling</i>		x		
United States of America	<i>Traditional enum. with yearly updates</i>	x	x		

## V. Internet Census

19. An increasing number of countries offer to the respondents the possibility of filling the census questionnaire online, on the internet. In general, offering the internet census option may lead to a number of potential benefits including<sup>7</sup>:

- improving/maintaining census participation (coverage) in an environment where response rates are dropping;
- improving data quality;
- long term reduction in costs and/or opportunities to redirect resource efficiencies; and
- responding to social/public expectations.

20. In the 2010 census round, 16 UNECE countries offered the internet census option, including seven countries with a traditional census and nine countries with a combined census (see tables 3a and 3b). This is a significant increase compared to the 2000 census round, when only four UNECE countries offered the internet census as an option (Belgium, Spain, Switzerland and the United States).

21. Information is still limited on the results of the internet census data collection in the 2010 round. However, from the first reports available it appears that several countries obtained relatively high pick-up rates (62% in Estonia, 54% in Canada, 50% in Portugal, 41% in Bulgaria, 33% in Italy, 27% in the Czech Republic)<sup>8</sup>, which were often above the most optimistic expectations. In the United Kingdom, on the contrary, the pick-up rate of the internet census (15%) was lower than the target, which was set at 25%.

22. With reference to their 2011 censuses, Canada and the United Kingdom reported<sup>8</sup> that the internet census provided better data quality and lower item non-response compared to the paper questionnaire, due to the use of filters, controls and warnings in the electronic questionnaires. Among other advantages of the internet census, Canada reported the limited amount of paper used, and the positive impact on the environment. In the UK, foreign-born respondents were more likely to use the online system. This may suggest that they were able to use the internet to translate some questions when completing their census returns, and this could have contributed to the better quality of the data collected online.<sup>8</sup>

23. With regard to the costs, information on the total costs and possible net savings of the internet census from the 2010 round is not yet available. Some information on this will be available when the census operations are completed in the countries. However, in general it may not be easy for countries to tell whether offering the internet census resulted in net savings. In particular, it is hard to measure some benefits associated with the internet census, such as responding to social/public expectations, or providing a “modern” image of the NSI.

<sup>7</sup> Source : “Building a Business Case for Census Internet Data Collection”, Tracy Moore, Lorna Bailie and Graeme Gilmour) Proceedings of Statistics Canada’s International Symposium 2008: Data Collection: Challenges, Achievements and New Directions. <http://www.statcan.gc.ca/pub/11-522-x/2008000/article/10978-eng.pdf>

<sup>8</sup> Source: information available at UNECE and papers submitted for the UNECE-Eurostat Meeting on Population and Housing Censuses (Geneva, 24-25 May 2012), available at <http://www.unece.org/stats/documents/2012.05.census2.html>

## VI. Benefits and risks of alternative census methodologies

24. The decision on whether to carry out the census with the traditional method or adopt an alternative methodology such as a register-based method, is normally the result of a careful evaluation where a number of factors are taken into account, including: users' needs, quality of the data, completeness of the count, data protection and security, comparability of results between countries and over time, respondent burden, timeliness of outputs, financial and political implications, and public understanding and acceptance<sup>9</sup>.

25. The decision to move from a traditional census to an alternative method is usually based on the expectation to derive some advantages from such change in terms on some of the factors listed above. On the other hand, changing the methodology may result in some disadvantages in terms of other factors, as there are various trade-offs. For instance, a register-based census may eliminate respondent burden and improve timeliness of results, but it may also affect comparability of results over time or create problems in terms of data protection and security, public understanding and acceptance, and the information that it can cover.

26. Moreover, there are also risks associated with the adoption of alternative census methodologies, particularly when innovative IT solutions are used. These risks have to be anticipated and managed in advance as far as possible, to avoid or at least to minimize the possibility that unexpected problems eventually affect the quality of census results.

27. Information on benefits and risks of alternative census methodologies, including predicted and realized savings, was collected from countries in the framework of the 2011 survey by UNSD and the US Census Bureau. Some results from that survey are presented in this section. The results refer in particular to 11 countries that conducted a combined census, and five countries that conducted a register-based census.

### A. Cost savings

28. One of the main reasons why countries decide to move away from the traditional census and adopt an alternative register-based approach is to reduce costs. From the information collected in the survey, most countries that used register data for the census (14 countries out of 16) predicted some savings compared to the cost of a traditional census. As expected, the predicted savings are particularly high for countries that used data only from registers and did not conduct any field collection, amounting at around 85% of the total cost for Austria, 90% for Iceland and Norway, and 99% in the Netherlands (this figure refers to actual savings). It can be assumed – although information is not available on this aspect – that these savings refer only to the additional costs for conducting the census and do not take into account the costs for setting up and maintaining the register-based statistical system.

29. In countries where data from registers were used in combination with a field data collection, the expected cost savings are lower but still very significant: 40% in Poland (this figure refers to actual savings), 50% in Turkey, and 75% in Spain. In the Czech Republic and Italy no cost savings were predicted, also because a full field enumeration was carried out in combination with the use of data from registers. With regard to the actual (and not only predicted) costs, the majority of countries reported that at the time the survey was

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<sup>9</sup> “Conference of European Statisticians Recommendations for the 2010 Censuses of Population and Housing” (2006), para. 53; United Nations publication ECE/CES/STAT/NONE/2006/4. Available on the internet at: [http://www.unecp.org/stats/publications/CES\\_2010\\_Census\\_Recommendations\\_English.pdf](http://www.unecp.org/stats/publications/CES_2010_Census_Recommendations_English.pdf)

conducted it was still too early to assess the actual cost saving, with the exceptions of the Netherlands and Poland mentioned above.

30. The results presented seem to confirm that using registers for the census can substantially reduce the census costs, particularly when no field data collection is carried out. However, in order to conduct a complete assessment of the cost implications of adopting a register-based census system, information on the costs for setting up and maintaining the necessary systems should be taken into account. It can be expected that if these costs are fully taken into account, moving from a traditional census to a register-based census may lead to net cost saving only in the medium-long term. In the short term, the significant investments necessary to set up the systems may result in costs comparable or even higher to those of a traditional census.

## **B. Time savings**

31. One of main shortcomings of the traditional census methodology is the very long time needed to process the huge amount of questionnaires. This is the main cause for the poor timeliness of the results from a traditionally conducted census. So, the possibility to shorten the time necessary to process the data and to improve timeliness of the census is often one of the main reasons for countries to consider alternative methodologies.

32. The information collected by UNSD and the US Census Bureau shows that only eight of the 16 countries using registers for the census (mainly countries that conducted a combined census) were expecting some time savings. Turkey estimated the time savings as 50% compared to a traditional approach. The other countries did not indicate any estimates. Among the countries with register-based census, Slovenia is the only one that expected time savings. Austria, Finland, Norway and Sweden did not report expecting time savings, quite surprisingly. For some of these countries (particularly for Austria and Sweden) this could be explained by the fact that it is the first time that they conduct a fully register-based census, and relatively more time may be needed to produce the results.

33. Two countries that adopted a combined approach including a full field enumeration (Germany and Poland) indicated that there were potentially some risks for *increasing* the time needed to produce the results. Israel, where the census was conducted in 2008, was the only country confirming that the adoption of the combined census reduced the time needed to produce the census results. For the other countries where the census was carried out in 2011, the information is not yet available.

## **C. Other benefits and risks**

34. In addition to cost and time savings, there are various other potential benefits deriving from adopting an alternative census methodology. The benefits expected by most of the 16 countries that used data from registers for the census concern improved data quality (11 countries) and coverage (9 countries). Other benefits are expected by a smaller number of countries, including the reduction or elimination of response burden (6 countries), decreased item non-response (5 countries), increased response rate (4 countries), the possibility of producing yearly statistics (4 countries) and the reduction of field work (3 countries).

35. With regard to concepts and definitions used for census topics, the results are apparently contradictory. In fact, seven countries that used registers for the census reported that they expect benefits deriving from the use of standardized census topics concepts and definitions. But seven countries also considered the fact of using data source definitions instead of census definition as a potential risk. Two countries (Israel and Norway) belong

to both groups. This could mean that for some census topics the use of data source concepts and definitions could be beneficial as it could ensure standardization, while for others it could entail some risks, for instance if the data source definition is different from the recommended census definition.

36. In terms of content, reduced topics were reported as a risk by six countries using registers for the census. They include four countries with register-based census (Austria, Norway, Slovenia and Sweden) and the two countries using data from registers and existing surveys but no field collection (Iceland and Netherlands). Finland is the only country with register-based census that did not report this as a risk, like all countries that use registers and carry out a field collection, which allows collecting data on topics not adequately covered in registers.

37. Three countries adopting a combined census using registers and sample surveys (Germany, Israel and Spain) reported the risk of providing limited output, particularly for small areas and for the variables covered by the sample surveys. Finally, the negative public perception was mentioned as a risk by two countries only (Estonia and Spain).

## VII. Conclusions

38. The information available shows that in the UNECE region the 2010 round of population and housing censuses is a success from the point of view of the participation of countries. Almost all countries in the region will have conducted at least one census by the end of the census round in 2014, including five countries that had not conducted a census in the 2000 round.

39. From the point of view of the census methodology adopted by countries for the census of the 2010 round, the data for the UNECE region show very significant changes, driven by a number of factors including cost and quality issues, public expectations, and changes in technology.

40. One clear result is that a significant number of countries in the UNECE region (particularly EU countries) moved away from the traditional census and adopted an alternative methodology, in most cases making use of data from registers combined with data from other sources. The percentage of countries conducting the census in the traditional way in the UNECE region decreased from 80% in the 2000 round to 56% in the 2010 round. Among EU-EFTA countries, only 35% carried out a traditional census in the 2010 round, while this methodology is still adopted in virtually all countries in Eastern and South-Eastern Europe, the Caucasus and Central Asia.

41. The results also show that the countries that moved away from the traditional census developed various methodological approaches, including the use of data from registers supplemented by different combinations of sources (such as a full enumeration, ad hoc sample surveys, or data from existing sample surveys). As a result, there is a diversification in the census methodology adopted, which makes the classification of the various census methods more complicated than in the past.

42. Preliminary information about the expected benefits deriving from the adoption of alternative methodology indicates that the large majority of countries predict some cost savings, which can be particularly relevant when data from registers are used with no field data collection. However, limited information is still available on actual cost savings. A complete assessment of the cost implications of adopting a register-based census will be possible only at a later stage, when more information will be available, covering also the costs for setting up and maintaining the necessary systems.

43. The majority of the countries using registers for the census also expect improvements in terms of data quality and coverage compared to a traditional census, while time savings are expected by only about half of these countries.

44. Adopting an alternative census method using data from registers also implies some risks. Several countries reported risks deriving from using data source definitions instead of recommended census definitions. The reduced number of topics was also reported as a risk by various countries, particularly by those using registers and not conducting any field collection.

45. The internet census is emerging as an important enumeration method which was offered in alternative to the traditional filling of paper questionnaires in a large number of countries, including countries with a traditional census and others with a combined census using registers and other sources. Various countries reported very high pick-up rates for the internet census (over 30% and up to 62%), which are expected to result in better overall data quality and possibly also in net cost savings, although evidence in this sense are still not available.

46. A more complete assessment of the impact of the adoption of innovative census methodologies and technologies, including the internet census, will be available once countries will have concluded the census operations, and more complete information will be available.

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