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Conference of European Statisticians

Group of Experts on Population and Housing Censuses

Twenty-fifth meeting

Geneva, 20–22 September 2023

Report of the meeting

I. Attendance

1. The meeting of the Group of Experts on Population and Housing Censuses was held from 20 to 22 September 2023 in Geneva, Switzerland, at the Palais des Nations, back-to-back with the UNECE Workshop on Population and Housing Censuses (18 and 19 September).
2. The meeting was attended by participants from the following countries and organizations: Armenia; Austria; Azerbaijan; Belarus; Canada; Costa Rica; Czechia; Denmark; Estonia; Finland; France; Georgia; Germany; Ireland; Israel; Italy; Kazakhstan; Kingdom of the Netherlands; Kyrgyzstan; Lithuania; Luxembourg; Mexico; New Zealand; Norway; Poland; Portugal; Republic of Korea; Republic of Moldova; Russian Federation; Serbia; Slovakia; Spain; Switzerland; Tajikistan; United Arab Emirates; United Kingdom of Great Britain and Northern Ireland; United States of America; Uzbekistan; the United Nations Statistics Division (UNSD); the United Nations Population Fund (UNFPA); the United Nations Children's Fund (UNICEF); the Delegation of the European Union to Bosnia and Herzegovina; the Statistical Office of the European Union (Eurostat); the Interstate Statistical Committee of the Commonwealth of Independent States (CIS-STAT); IPUMS International (Census Dissemination Partnership); the National Institute for Economic Research; and The Sensible Code Company, as well as an independent census expert at the invitation of the Secretariat. There were 90 participants.
3. The attendance of many participants was supported financially by UNFPA.

II. Organization of the meeting

4. Eric Schulte Nordholt of the Netherlands chaired the meeting.
5. The following substantive topics were discussed at the meeting:
 - (a) Lessons learned from censuses of the 2020 round.
 - (b) Upcoming censuses in the United Nations Economic Commission for Europe region.
 - (c) Revising the Conference of European Statisticians Recommendations for Population and Housing Censuses for the 2030 round.
 - (d) The future of population statistics.



6. Discussions were prepared and led by Kaija Ruotsalainen, Finland; Zhanna Vasilevskaya, Belarus; Eric Schulte Nordholt, Netherlands; and Andres Vikat, UNECE.
7. Documents and slides presented at the meeting are available on [the web page of the meeting](#).

III. Recommendations for future work

8. Participants expressed their commitment to the implementation of the work plan to develop the Conference of European Statisticians Recommendations for population and housing censuses of the 2030 round, including the provision of detailed information on the 2020 round of censuses through the UNECE survey in September and October 2023.

9. Participants recommended that the next meeting of the Group of Experts on Population and Housing Censuses should take place in person in 2024 and took note that a meeting room and interpretation for this are reserved at the Palais des Nations from 2 to 4 October 2024 (to be preceded by a workshop on 30 September and 1 October).

10. The task forces for developing the Conference of European Statisticians Recommendations for population and housing censuses of the 2030 round and the Steering Group on Population and Housing Censuses should submit the following draft chapters of the Recommendations to the 2024 meeting of the Group of Experts as official documents, to be distributed in English, French and Russian:

- (a) Emergency preparedness and contingency planning;
- (b) Quality assessment and quality management;
- (c) Enumeration methods;
- (d) Technology;
- (e) Population concepts and related definitions;
- (f) Economic characteristics;
- (g) Migration and mobility (national and international);
- (h) Household and family characteristics;
- (i) Sex and gender;
- (j) Housing topics;
- (k) Geospatial information and small area statistics for censuses;
- (l) Dissemination of disaggregated census data;
- (m) Communication and outreach;
- (n) Aim and scope of the Recommendations.

11. On future international work on population statistics under the Conference of European Statisticians, participants welcomed the strategic approach towards the integration of activities of the Group of Experts on Population and Housing Censuses, and the Group of Experts on Migration Statistics..

IV. Adoption of the meeting report

12. The meeting adopted parts I–III of this report before adjourning. A summary of the discussion in the substantive sessions of the meeting is presented in an annex to this report, which was prepared by the Secretariat after the meeting.

Annex

Summary of substantive sessions

I. Overall observations and conclusions

1. Key observations, conclusions and recurrent themes during the meeting included the following:

(a) *Communication and partnerships* at all stages of the census cycle and with a widening range of stakeholders is becoming increasingly important in securing trust and facilitating efficient censuses, no matter what census design is adopted;

(b) As countries increasingly adopt methods that make use of administrative data sources, there is a growing need for attention to the *quality of administrative data*. This may include assessing and improving the quality of basic data collected for civil registration and vital statistics;

(c) The characteristics typically considered to constitute '*essential features*' of a census—individual enumeration, simultaneity, universality, defined periodicity and small area data—are evolving as census designs diversify and as countries look towards the future of population statistics;

(d) There is a shift emerging towards a paradigm of *integrated population statistics*, based on a continuous model using linked administrative data and taking into account migration flows. Some countries are looking towards the idea of a such a permanent and continuous population statistics system to replace current models that are based on periodic censuses and separate migration statistics. With this in mind, participants supported the proposal that in the medium to long term (starting in 2025), CES activities on censuses and migration should be integrated under the umbrella of 'population statistics' to better reflect this emerging reality and support countries undertaking such a shift, while continuing to recognize and support those which continue with their current approaches.

II. Lessons learned from censuses of the 2020 round

2. The large majority of countries in the UNECE region have now completed their censuses for the 2020 round. Every census gives rise to learning—what went well, what could have been done better, what might be done differently in the future.

3. This session included presentations from Slovakia and Estonia on household data; from the United States on communications strategies; from the United Kingdom on innovations in dissemination; from Spain on the completed transition to a register-based census; and from the Russian Federation and Poland on the successes and lessons learned from their censuses. Discussion was led by Finland.

4. The presentations from *Slovakia* and *Estonia* highlighted specific challenges for identifying and classifying households and dwellings in a combined or register-based census, and illustrated innovative methods for addressing these challenges. In Slovakia, the information on households contained in registers was compared with self-declared residence information collected via census enumeration. In Estonia, graph theory was harnessed to correct the overestimation of lone parents and underestimation of couples in registers.

5. Participants discussed the ways in which information on household and dwelling characteristics necessary for a census can be collected when the relevant variables are not present in registers. In the case of Estonia, this was done by means of a two-part sample survey, with one part being mandatory and the other part voluntary. In Slovakia, an assessment of the quality of each source and each variable informed the decisions about which items to include in the census questionnaire.

6. Discussion touched on the question of legislative support for access to the administrative sources required for a register-based census. An obligation to provide

administrative data to the census office does not in itself guarantee timely access or high-quality data. Partnerships need to be nurtured with data providers, e.g. to develop a register of unique apartment numbers.

7. Participants showed interest in the ‘Census Barriers, Attitudes, and Motivators Study’ reported by the *United States*. Focusing on beliefs and attitudes that reduced people’s likelihood of completing the census, it permitted targeted development of messaging during the census information campaign.

8. The *United Kingdom*’s presentation emphasized that the cost and effort expended in conducting a census is rendered worthwhile only if the results are disseminated in a way that adds value for users. A blended offering of products tailored for different user groups helps to fulfil this aim.

9. *Spain*’s transition to a register-based census in 2021 provoked much discussion around a variety of topics, including the processes followed for coordinating the verification of residence, differences in reference periods for different data files, and the variables used to create unique linkage keys. Public acceptance of the transition—both with respect to using new methodology and related to the absence of certain variables from a register-based census—was discussed by representatives of other countries contemplating a similar transition and navigating the related public engagement needs.

10. The census of the *Russian Federation* during the height of pandemic served as a confirmation of the need for effective contingency planning, and reaffirmed that transitions to new approaches including moving to a register-based approach take time.

11. The approach followed in *Poland* generated discussion among participants relating to the combination of register data and field collection. While field collection concerns only a relatively small percentage of census variables, much effort still needs to be focused on this portion as it entails motivating the population to respond.

12. In summarizing the diverse session, the discussant noted that the unique challenges brought about by the pandemic in this census round drove innovation at an even faster rate than was previously expected, with an ever-growing share of countries using registers for some or all of their census, as well as many countries turning to online self-enumeration. Although fully register-based censuses did not experience the same degree of difficulty as other census types during the pandemic, there were still delays and issues to be resolved, such as deciphering residence and household organization from register data. New lived realities such as a changed understanding of ‘place of work’ following new patterns of increased working from home have created new conceptual questions that remain to be resolved. Communication remains an endeavour of central importance no matter what census methodology is used.

III. Upcoming censuses in the United Nations Economic Commission for Europe region

13. Countries which have not yet conducted a census in the 2020 round, or those which conduct censuses more frequently than decennially and therefore have another census coming up soon, were invited to share information about their planning and expectations. The session included a presentation from *Uzbekistan* on the 2021 pilot census and implications for the planned census; and from *Mexico* on preparation for the 2025 population and housing count. Discussion was led by *Belarus*.

14. The pilot census of *Uzbekistan* tested paper, tablet and Internet data collection and identified the latter two as the modes to be employed in the census (which at the time of the Expert Meeting was scheduled for 2024). A comprehensive mapping exercise has also been conducted to map residential buildings across the whole national territory.

15. The forthcoming full population count in *Mexico* will benefit from a detailed risk management plan with sophisticated real-time progress monitoring and management at local and central levels, developed in response to the many challenges and disruptions that have affected previous censuses including epidemics and pandemic, earthquakes and hurricanes,

civil unrest and migrant crises. The statistical office in Mexico also benefits from its full integration with the national geospatial activities, which facilitates the use of geospatial information to manage census operations.

16. Reflecting on the session, the discussant noted the many challenges that can be barriers to conducting a census or can hinder its progress. A lack of financial and governmental support may prevent the census from going ahead in Uzbekistan in spite of the readiness of the statistical office.

17. Participants noted the very rapid pace of development in Uzbekistan and raised concerns about the implications of this with respect to the mapping of residential buildings, which would require significant updating if the census is further postponed. The use of satellite imagery was suggested as a means of providing rapid updates, especially in light of the reduced human resource capacity in regional statistical departments following earlier postponement. Budgetary constraints, however, may preclude this option.

18. Discussion also covered the importance of pilot censuses being as close as possible to the same methodology to be employed in the actual census. When major changes are introduced, a new pilot may become necessary.

19. Participants also discussed the limitations of register data in Mexico and the resulting necessity to continue adopting a traditional approach, albeit employing many lessons learned from the previous census..

IV. Revising the Conference of European Statisticians Recommendations for Population and Housing Censuses for the 2030 round

20. The Bureau of the Conference of European Statisticians (CES) has established 13 thematic task forces to revise and update the CES Recommendations for Population and Housing Censuses, with the aim of producing a new edition in 2025 to guide censuses of the 2030 round. The task forces have been working since late 2022, focusing initially on designing a comprehensive questionnaire for all member countries to understand the experiences and the practices followed across the region in the 2020 round. This questionnaire was sent out to National Statistical Offices (NSOs) of CES countries shortly after the present meeting. More than 150 experts are involved in the groups. In this session, each task force presented its current thinking including the content they had prepared for the questionnaire and the reasons for doing so. The task forces shared ideas and invited further insights from among the community of experts.

21. The task forces will analyze the findings of the survey and produce reports on their findings in the first quarter of 2024. They will share these findings, as well as the resulting proposals for the 2020 CES Recommendations, at the 2024 meeting of the Group of Experts.

22. Participants were informed that task forces can still welcome new members if offices wish to make further nominations. This should be done as soon as possible by sending to the secretariat the names and contact details of those wishing to join.

23. UNSD informed participants about the current status of the corresponding global project to revise and update the United Nations Principles and Recommendations for Population and Housing Censuses.

24. Discussion was led by the Netherlands.

A. Emergency preparedness and contingency planning

25. Discussion covered the need to describe the specific emergencies that may be experienced by countries conducting fully register-based censuses, including data leaks and failure of information technology systems.

26. Participants also noted the growing importance of tackling misinformation and disinformation, to prevent or respond to crises of trust and participation that this may cause.

This aspect will be examined collaboratively with the task force on communication and outreach.

27. A suggestion made for consideration by the task force is to make recommendations for documenting lessons learned to ensure they are integrated into corporate memory, especially in countries with decennial censuses in which a large share of knowledge about the census is held by individuals who may not remain in the office by the time of the subsequent census.

B. Quality assessment and quality management

28. Participants noted the growing demand for continuous quality assessment and real-time quality indicators, not only for census management purposes but for transparency and user confidence. The questionnaire will reveal the extent to which countries set targets for quality measures and share them with stakeholders. Questions asked by the representative of the United Arab Emirates confirmed the need for enhanced guidance on assessing the outcomes of a register-based census by comparing quality indicators with targets.

29. The task force proposes to add emphasis to sections of the Recommendations dealing with assessing the quality of record linkage, editing and imputation, and the specific metrics relevant to the various census types, especially those using administrative sources.

C. Enumeration methods

30. Discussion touched on the need for guidance on routing of enumerators in censuses where dwellings are visited.

31. There was discussion of the wide and growing diversity of census designs within the category labelled ‘combined census’: including those in which administrative data are used to provide data that is deliberately not collected in the field; those in which administrative data are used to fill gaps or correct errors in the field data; and those such as the case of Poland in which all variables are collected both from enumeration and from registers, and quality decisions are made at the level of the individual variable to decide which source to use for each. It was observed that countries have different incentives for the way in which they self-identify and brand their census, including financial, political and cultural pressures. Hence some may opt to stress the continued use of field enumeration even if some share of variables comes from administrative sources by design, while others tend towards emphasizing the modern and ‘non-traditional’ image even while continuing to rely exclusively on field collection, albeit with the use of modern approaches to collecting the data. There is no threshold for a percentage of census variables coming from administrative sources that qualifies a census as being ‘combined’.

32. The impacts of the different technological options for conducting enumeration were discussed, namely that where self-enumeration is designed to be done using mobile telephones, questions and questionnaires need to be kept relatively short.

33. Prompted by this discussion, it was observed that the areas of scope of some task forces overlap (e.g. enumeration methods with technology). The secretariat confirmed that such overlaps are being accounted for and task forces are encouraged to collaborate in these areas.

D. Technology

34. Participants noted the need for the Recommendations to discuss accessibility for people with functional impairments and the ‘digitally disconnected’, and to propose technological solutions to facilitate their participation in increasingly technology-centred censuses.

35. The potential for technology to improve secure communication between census staff at various levels was observed, and suggested for elaboration by the task force.

36. Discussion covered the considerations when using cloud solutions for storage and transmission of census data.

37. Also relating to data storage, it was mentioned that increasing sophistication in data storage, processing and retrieval often goes hand-in-hand with reduced permanence of such systems, as technological change accelerates. The implications of this for very long-term storage and retrieval may need to be discussed in the Recommendations, working in collaboration with the task force concerned with confidentiality and security.

E. Population concepts and related definitions

38. Discussion included the topic of daytime and workplace population counts, and other policy-relevant counts beyond usual residence. The secretariat drew attention to the CES Bureau's in-depth review of use cases for alternative population bases, to be conducted in October 2023 and informed by a paper prepared by the United Kingdom, Poland and the secretariat¹. The task force will take account of this review and any recommendations arising from it.

39. It was suggested that secondary residences may merit consideration by the task force.

40. Participants noted the importance of an adequate treatment of homelessness, both primary and secondary, and other groups of people who do not have a usual residence as commonly understood (such as regular 'couch surfers'), in the Recommendations. It may be advisable to bring together all the currently disparate mentions of homelessness throughout the document, into one place, or to provide comprehensive cross-referencing among each of these parts.

41. Participants raised the issue of collective dwellings (institutions), noting that CES has issued guidance on this topic since the last edition of the Recommendations. The task force may consider expanding the treatment of this topic and/or referencing the CES guidance, including offering illustrative examples. A suggestion was made to ensure that the definitions are clarified earlier in the overall document.

42. There was discussion around the task force's proposal to specifically mention children born in the twelve months prior to the census reference time (as in principle they ought to be included simply by virtue of falling within the definition of usual residents). The task force chair explained that the explicit mention is proposed to reinforce to importance of their inclusion since they are often erroneously missed.

43. It was suggested that the recommended treatment of students in tertiary education should be clarified in the Recommendations.

44. There was significant discussion about the definitions related to usual residence, including the time period for defining it and the related topic of place of usual residence. The particularities of register-based censuses were observed. It was also noted that in some countries there are strong incentives to register somewhere other than where one truly lives, such as to benefit from public services. Countries' responses to the questionnaire will provide important information to inform the task force on this matter.

F. Economic characteristics

45. There was discussion around a variety of specific aspects and types of work which could be considered for inclusion or expansion in the Recommendations, including informal employment, underemployment and voluntary work.

46. The task force took note that the International Conference of Labour Statisticians was due to take place in October 2023, and acknowledged the importance of ensuring coherence between the conclusions of that conference and any proposed revisions to the CES

¹ The paper can be found on [the meeting web page of the October 2023 CES Bureau](#).

Recommendations. This endeavour is facilitated by the representation of the International Labour Organization in the task force.

47. Participants discussed the different roles of censuses and Labour Force Surveys (LFS) as a means of providing labour statistics. It was observed that inclusion of many questions in the census can lead to overburdening of respondents, and that the frequent changes in people's economic activity may be better captured in the LFS than in a decennial census. Such considerations will be taken into account by the task force when demarcating 'core' and 'non-core' topics in the Recommendations.

48. There was discussion of the application of upper and lower age limits for questions on economic characteristics in censuses and the resulting statistics. The present and past economic activity of older persons has increasing policy relevance in ageing societies. The results of the survey will reveal the current use of age limits in CES countries and will inform any proposals made by the task force.

G. Migration and mobility (national and international)

49. It was remarked that the word 'mobility' in English can have several different connotations depending on the context, including social mobility in the sense of changing socioeconomic status, and physical mobility in the sense of day-to-day movements e.g. the mobility of persons with disabilities being enhanced by the use of electric mobility aids. Hence it was suggested that the use of this word be considered very carefully in the Recommendations, and if it is decided to continue using it, it should be very clearly defined. This will also help to ensure accurate translation into other languages.

H. Household and family characteristics

50. Topics on which the task force has considered a potential need for revision include the use of household matrix methods; the concept of place of usual residence; how changing understandings of gender will impact classifications of household relationships; identifying and classifying institutional households; and the use of household dwelling versus housekeeping concepts. Participants suggested also considering the implications of people who alternate between households, and other non-standard 'households' such as those containing members who are temporarily abroad, and people not living in households.

51. It was noted that countries using administrative sources for their censuses face particular challenges in identifying households, as had been observed in an earlier session of this meeting. When registers are used to 'construct' households based on the place of usual residence, the results could theoretically differ significantly from those derived using the classical housekeeping concept. However, it was mentioned that a study in England and Wales had compared household distributions when defined by the two different concepts and had found that fewer than one per cent of households were differently classified with the two definitions. The task force was urged to consider developing clear recommendations for the use of these different approaches. Representatives of countries with register-based censuses were invited to express interest in joining the task force to ensure that these challenges are fully accounted for in the work.

52. It was stressed that this group should consult with the task force on sex and gender to ensure that definitions and classifications involving household relationships adequately reflect current understandings of gender and of the diversity of household configurations.

53. There was some discussion about the use of relationship matrix approaches and reference person approaches. The task force was urged to consider clarifying the guidance on these.

I. Sex and gender

54. The discussion on this topic focused principally on the ways in which gender might be included in a census based on registers or administrative data, and on the potential of

administrative data sources to be used for editing and imputation of sex and gender information, as well as the technical and ethical implications of doing so. It was noted that imputation in general should not be recommended for voluntary questions. The task force was urged to ensure the specificities of register-based censuses are well covered in this new section of the Recommendations.

55. Participants also mentioned the issues surrounding the introduction of a ‘third gender’ in administrative records (in population registers, passports, or the ability to change one’s birth certificate). The task force is considering these issues and how they should be tackled in the Recommendations.

J. Housing topics

56. The primary focus of discussion was the necessity for the Recommendations to distinguish more clearly between characteristics of *housing units*, and those which are more correctly considered characteristics of *households*. This has already been under discussion by both of the task forces concerned, without clear resolution as yet. Some characteristics such as availability of internet access might differ among the different households occupying a single multi-household dwelling unit, and so should not be considered to be features of the housing. However, part of the intent in gathering such information might be to determine whether internet access is available in that housing unit, which would be a feature of the housing.

57. Discussion also explored the reasons for gathering information on many housing characteristics, which often might be as a proxy for a general standard of living. Participants noted that when a large number of questions on housing quality and availability of amenities are asked, respondents may be overburdened. It was suggested therefore that the Recommendations call for a parsimonious approach, in which there is a focus on the most reliable proxies for general living standards rather than large batteries of questions.

58. There was also discussion about the inclusion of subjective questions regarding perceived quality of housing and living environments. Participants debated the value of these and the quality of information they would yield.

59. It was observed that some questions about housing, such as housing type and date of construction, are difficult to answer and have been found to produce poor-quality information, for example in the case of Ireland. The United Kingdom noted that such quality concerns underlie the decision to replace the census question on ‘number of rooms’ in the census of England and Wales with administrative data. This discussion led to a call for the Task Force to make recommendations about assessing likely data quality.

K. Geospatial information and small area statistics for censuses

60. It was noted that there remains very wide variation in the extent of NSOs’ use of geospatial information and in their capacities to harness its potential for efficient conduct of censuses. The importance of geospatial information at all stages, from planning to conduct to dissemination, was emphasized.

61. Participants noted the challenges of conducting a field enumeration-based census in the absence of complete physical address information. The representatives of Poland, chairing the task force, recalled the successful experience in Poland of enumerator-based collection of physical address data in combination with X.Y coordinates, which greatly facilitated future data collection. The technical recommendations contained within the Global Statistical Geospatial Framework should be echoed and cross-referenced in the Recommendations.

62. There was a suggestion to include in the Recommendations some guidance on building partnerships with the holders of administrative and geospatial data, including making the point that cooperation can be mutually beneficial as it may help those data holders to improve the quality of their data.

63. The topic of data security and disclosure control came up with respect to census data that is disseminated with a geospatial component. The Recommendations should reiterate the key tenets that NSOs should only collect or link what is needed, and that confidentiality must be maintained when publishing data. These considerations also foster trust which in turn safeguards continued cooperation of respondents, not only in censuses but in all statistical collections.

L. Dissemination of disaggregated census data

64. The topic of dissemination has close links with many of the other task force themes, and as such requires careful coordination (e.g. with the groups working on quality, communication, geospatial information and technology).

65. A major area of revision in the Recommendations will be related to statistical disclosure control, as this is an area in which there have been profound developments since the previous edition.

66. The new challenges to disclosure control posed by the demand for more complex, interactive user tools will be addressed.

67. Participants noted the need for guidance on the application of grid squares, where definitions might be inconsistent.

M. Communication and outreach

68. Many new communications challenges have arisen for censuses since the previous edition of the Recommendations, including shifting media landscapes, the increasing spread of misinformation especially on new media platforms, the need for responsive crisis communications, and a growing appreciation of the importance of inclusivity and correct use of terminology with respect to special population groups. There are also increasing challenges in reaching and engaging members of certain groups to secure their participation in censuses.

69. Participants drew attention to the need for the Recommendations to provide adequate guidance for the communications strategies of countries with fully register-based countries, and for those implementing or considering any major changes in their census methodology and data sources. Understanding the social acceptability of such transitions and communicating sensitively about the changes is crucial for maintaining trust. For countries with fully register-based censuses, even if they have been that way for a long time, there are communications considerations. Some of these are unique to the register-based and combined models, such as the communication with data holders. Effective communication and partnership-building ensures compliance with the requirement to inform or consult the NSO in advance when any changes are administrative data sources are contemplated.

70. The absence of any representatives from countries with register-based censuses from this task force was observed, and experts were encouraged to volunteer.

V. The future of population statistics

71. As the cyclical process of revising and updating the census Recommendations for the 2030 round continues, some commentators and some whole national statistical systems are looking towards the future with a very different perspective—asking what a census is for, what needs it answers, and whether, indeed, a census is the best model to answer these needs. With increasing moves away from direct enumeration in favour of registers and administrative sources, combined with a shifting balance in user priorities between the various quality dimensions such as timeliness, accuracy and relevance, some believe that statistics on population and migration will eventually be produced in permanent integrated systems without the need for a census or census-like information.

72. In this session, presentations and interventions were made by Italy (two presentations), the United Kingdom, France, the United States and New Zealand.

73. In *Italy*, the move towards use of registers has been complemented by dedicated efforts to gather information hard to reach groups including the homeless and citizens living abroad. *New Zealand* is aiming for an “admin first” census in 2028, with field enumeration playing a secondary role. *France* is developing a statistical population register designed to eventually act as a ‘spine’ to which other data sources could be linked. The *United Kingdom* has no single easy source for such a spine but is developing a complex Dynamic Population Model to provide population estimates by integrating a range of sources. The *United States* has conducted research to develop a Demographic Frame for producing annual population estimates.

74. Following the presentations, an interactive panel discussion was held with interventions from five experts: Tori Velkoff, USA; Rochelle Morgan, New Zealand; Muriel Barlet, France; Enrico Tucci, Italy; and Irina Zbarskaya, CIS-Stat. Questions to the panel were posed and discussion was moderated by Andres Vikat, UNECE.

75. Panellists addressed questions about their vision for the production of population data on core census variables around 2030; and the challenges that will need to be overcome to realize these visions.

76. As user demand for more timely and more frequent population statistics grows, there is a growing recognition that they need not come from a single source or a single data collection programme. It may be that the best estimate for one variable comes from the census and for another variable it comes from a survey or an administrative source. Users are less interested in the origin of the data than they are in the reliability and useability of the result. In the United States, a move away from ‘collection-based’ outputs reflects this trend and avoids the potential for confusion, e.g. from having different values of a given variable arising from different surveys and other sources.

77. *The role of modelling and estimation* is expected to grow, and this in turn will bring challenges in communicating the reasons for this to the public to ensure social acceptability. In New Zealand, the use of sampling for core census variables may increase, but the ‘census’ brand is likely to continue to be used as it carries significant weight for the population. Hence *the validity of characteristics typically considered to define a census*, such as universality, may need to be reconsidered.

78. Engaging the *trust and support of minority population groups*, including indigenous peoples, will become increasingly important in the context of shifts towards using more administrative data, in which such groups may feel greater concerns about confidentiality than larger groups. In parallel, there is a *need to ensure that real lived experiences are captured in administrative-based statistical systems*, for instance by measuring the things which matter to indigenous and minority groups, which requires consistent engagement and research.

79. A notable challenge will be *securing the necessary financial resources* in a context of limited understanding among policymakers of what is needed to produce statistics with administrative sources. If it is widely thought that such systems operate on a ‘click and go’ basis, then resources may not be forthcoming.

80. The *interrelations between census and migration statistics* were discussed, with emphasis on the need for increased international cooperation in the form of bilateral and multilateral agreements for efficient *data sharing*.

81. Participants discussed the many possible future uses of *artificial intelligence* in facilitating census processes.

82. In concluding, the session moderator observed that there is no single trajectory or one-way transition, but a growing diversification of approaches all aiming to increase efficiency and reduce costs, improve timeliness, meet user needs with relevant population statistics, and safeguard public trust in official statistics.