Report

Innovative Data Collection for 2020 Round Censuses :eCensus & Register-based Census

2018.11.22.(Thu) - 11.23.(Fri)

2018. 12. 03.

ASIA PACIFIC POPULATION INSTITUTE

Contents

1. Overview

1) **Workshop Title** : Workshop on Innovative Data Collection for 2020 Round Censuses: eCensus & Register-based Census)

2) **Date** : 22 (Thu) to 23 (Fri) November, 2018

3) **Venue** : Interciti Hotel, Daejeon, Republic of Korea

4) **Participants** : Approximately 60 people, consisting of

- ☐ Experts from National Statistical Offices, mainly census managers and technical experts
- ☐ Academics specializing in population statistics, and social sciences
- ☐ Researchers who are interested in the latest census data collection methods

[Image 1] Group Photo of Workshop on Innovative Data Collection

5) Aims and Objectives

□ eCensuses and Register-based Censuses are now significant topics for the world where the meaning of borders is fading and people are working more frequently outside of their homes and countries. This workshop, 'Innovative Data Collection for 2020 Round Censuses: eCensus & Register-based Census' will provide a platform for experts and government officials on population statistics to share knowledge and practical experiences on the latest census issues.

By inviting and holding discussions with experts from countries that have shown successful results of eCensus and register-based census, workshop participants can find solutions and new approaches for their own research, introduce the latest census data collection methods, and discuss future development plans. Statistics Korea is currently preparing for the 2020 Population Housing Census and expects this workshop to help improve the quality of their upcoming 2020 Census.

6) Main Topics

□ Challenges of "traditional" censuses:

- the cost of the traditional census has consistently and sharply risen in recent years;
- the response rates to a traditional census have lowered despite the rising cost;
- while demands for more timely and up-to-date census data are increasing, the traditional census, based on either a five-year or ten-year interval, does not live up to this expectation;
- last but not least, rapid changes in the general social, economic, and demographic environments surrounding census taking make the traditional census less sustainable and effective.

□ Issues and problems associated with these transitions and new approaches that need to be resolved:

- Survey operation & management
- Mode effects due to multimodal data collection
- Non-response issues & imputation
- Quality assessment: validity, reliability, and consistency
- Privacy issues
- Etc.

7) Workshop Agenda

[Table 1] Workshop on Innovative Data Collection Agenda

Date	Time	Contents
<Day 1>		
11. 22. (Thu)	09:00-09:20	**Registration**
	09:20-09:30	**Opening Ceremony**
	09:30-10:00	Group Photo and Break
	10:00-12:00	**Session 1. eCensus and Innovative Data Collection (1)**
	12:00-13:30	Lunch
	13:30-15:30	**Session 2. eCensus and Innovative Data Collection (2)**
	15:30-15:50	Break
	15:50-17:50	**Session 3. Quality Assessment of Register-based Censuses**
	18:00-19:30	Dinner
<Day 2>		
11. 23. (Fri)	10:00-12:00	**General Discussion**
	12:00-13:30	Lunch

2. Workshop Organization

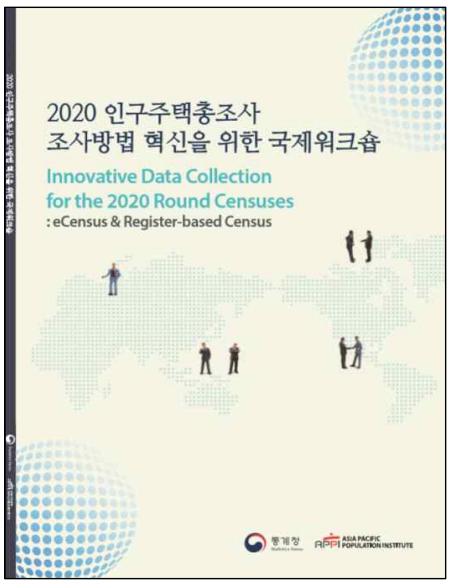
☐ All-day simultaneous interpretation provided on 22 Nov.
Morning-time consecutive interpretation provided on 23 Nov.

☐ Lunch and dinner provided for speakers, discussants and participants in the same place as the venue.

☐ Publication and distribution of 2017 research papers in book form

- Census research papers, from the Workshop on Development of Census Methodologies and Applications in 2017, were published as a book with contents such as online data collection, the utilization of administrative records for register-based census, etc. (Title: Innovation and Advancement of Census Methodologies and Applications). Books were distributed to the workshop participants to be used as a reference along with other information packets.

[Image 2] 2017 Research Paper and the Workshop Material



☐ Invited Speakers

- The workshop on Innovative Data Collection for 2020 Round Censuses is composed of three sessions. Speakers for the sessions were invited among experts from National Statistical Offices, mainly census managers and technical experts. An introduction of the speakers is as follows:

[Table 2] Speakers for the Workshop on Innovative Data Collection

	Speaker	Nationality	Affiliation and Position
Session 1	**Dong-Hun Suh**	Rep. of Korea	Deputy Director, Population Census Division, Statistics Korea
	Mark E. Asiala	United States	Assistant Division Chief, American Community Survey Statistical Design, Decennial Statistical Studies Division, U. S. Census Bureau
Session 2	**Marc Hamel**	Canada	Director General, Census Program, Census Operations and Informatics, Statistics Canada
	Seet Chia Sing	Singapore	Director, Census Office, Singapore Department of Statistics
Session 3	**Daniel Pfeffermann**	Israel	National Statistician, Central Bureau of Statistics in Israel
	Eric Schulte Nordholt	Netherlands	Senior researcher and project leader of the Census, Division of Socio-economic and Spatial Statistics, Statistics Netherlands

3. Workshop Program

1) Session 1

☐ The session on 22 November focused on the presentations and discussions between domestic and overseas speakers as well as speakers and discussants. The attendance of general participants was allowed.

☐ Simultaneous interpretation was provided for the effective communication of overseas speakers' presentations.

☐ Each session included 2 speakers, 1 moderator and 2 discussants.

[Image 3] Arrangement for Session 1-3

□ Session 1. eCensus and Innovative Data Collection (I)

Session Chair	Tai-Hun Kim, Head, Asia Pacific Population Institute
Speaker 1 (30m)	Data Collection for Census in Korea: Data Sources and Collection Methods By Donghun Suh, Deputy Director, Statistics Korea
Speaker 2 (30m)	Reengineered Address Canvassing Operation and the Use of ICT for Census By Mark E. Asiala, Assistant Division Chief, U. S. Census Bureau
Discussion (1h)	BongOh Kye, Professor, Kookmin University
	Myung Jin Hwang, Professor, Korea University

- Summary

- The Statistics Korea (KOSTAT) is currently in the preparation of conducting Censuses in 2020. During the presentation, the results of the 2015 Census were introduced, and the data source and collection method used at that time were also shown (Preparation Survey → Internet Survey (CASI) → Interview's Visit (PASI or PAPI)). The goal is to identify the problems and to conduct more efficient surveys in 2020 and to obtain improved quality results. The 2020 Census will be based on the register-based census and sample survey. IT-based census will be introduced, and electronic devices will be actively used by 2020.
- The United States is also ahead of the 2020 Population and Housing Census. It should be possible to implement 2020 censuses at lower cost per household than the 2010 census to keep pace with inflation while maintaining high quality results. Four key innovation areas for 2020 are as follows: (1) Re-engineered Address Canvassing, (2) Optimizing self-response, (3) Utilizing Administrative Records and Third-Party Data, (4) Reengineering Field Operations. The 2020 census preparation is divided into four areas, and the accomplishments, the problems discovered, and measures are announced. For the proposed measures, there will be several assessments to evaluate each development and measure the achieved improvement.

□ Session 2. eCensus and Innovative Data Collection (II)

Session Chair	Hye-Kyung Lee, President, Population Association of Korea/Paichai University
Speaker 1 (30m)	Collection Approaches for the Canadian Census of Population By Marc Hamel, Director General, Statistics Canada
Speaker 2 (30m)	Paperless Census: Singapore 's Experience By Seet Chia Sing, Director, Singapore Department of Statistics
Discussion (1h)	Seulki Choi, Professor, KDI School of Public Policy and Management
	KeunTae Kim, Professor, Korea University

• Summary

- Canada is ahead of the 2021 Population and Housing Census. Various approaches such as Multi-mode collection, Support systems and infrastructure (MCS), Wave methodology aligned with Communication program, Wave model, and Non-response Follow-Up (NRFU) are prepared. Canada explained the implementation of the 2016 Census and is preparing the 2021 Census based on it. In preparation for the 2021 & 2026 census, they are preparing to use administrative data, expand mailing, and reduce the use of paper questionnaires (To be tested in 2019). By using administrative data, it will be to replace NRFU in some cases – possibly integrated in tolerance management and to support other field activities such as Dwelling occupancy verification and Dwelling classification survey.
- Singapore is ahead of the 2020 Population and Housing Census. With presenting the evolution of the Census taking in Singapore, the progress and development were introduced. To reduce response burden, Singapore has been using administrative registers to produce Census data since 2000. For 2020 Census, Tri-Modal Data Collection Strategy will be kept using with improvement in each mode. Tri-modes are (1) Internet Self-Enumeration, (2) Telephone Interview through the Census Hotline using Computer-Assisted Telephone Interview (CATI), (3) Face-to-face interview with field interviewers using Tablets.

□ Session 3. Quality Assessment of Register-based Censuses

Session Chair	Kwang-Hee Jun, Senior Researcher, APPI/Chungnam National University
Speaker 1 (30m)	Quality Assessment of Register-based Census and Preparation for the 2020 Census Round By Daniel Pfeffermann, National Statistician, Central Bureau of Statistics in Israel
Speaker 2 (30m)	Quality Assessment of Register-based Census and Preparation for the 2020 Census Round By Eric S. Nordholt, Project leader of the Census, Statistics Netherlands
Discussion (1h)	Mingue Park, Professor, Korea University
	Young Il Lim, Deputy Director, Statistics Korea

• Summary

- Israel is planning to conduct the Population and Housing Census in 2021. The presentation was spoken in order from "How is Israel going to run its next census" to "Plans for census evaluation" to "How to deal with informative (not missing at random) non-response". All Israeli nationals and foreigners are identified through administrative data, but there is a problem arousing with identification of address changes, multi-addresses from more than one house, etc. Data collection will consist of INTERNET→ CATI →CAPI. The direct estimates by use of Fay-Herriot estimator will be used to improve the results. Evaluation process for Census, Accounting for Non-response in sample survey, and prediction of other variables were explained using mathematical statistics.
- The Netherlands is also ahead of the 2021 Population and Housing Census. Definition of quality in statistics is 'Code of practice' according to Eurostat. Product Quality is measured by the following standards: Relevance, accuracy, timeliness and punctuality, comparability and coherence, accessibility and clarity. Process Quality is measured on the basis of Best methods, Cost efficiency and Low response burden. Administrative data has many advantages to conduct efficient Censuses because it almost zero-costs for data collection (for the NSI), causes no additional response burden and uses resources on improving data instead of collecting data for statistical purpose.

3-2. General Discussion

☐ When a korean delegate first asked a question, the applicable countries responded, and then everyone discussed the issue more deeply.

☐ Consecutive interpretation was provided for the effective communication of participants at home and abroad.

☐ General Discussion was composed of Korean (moderator and discussants), five overseas speakers/discussants, an interpreter and pre-registered participants from KOSTAT and the relevant academia. A U-shaped set up was employed for smooth communication.

[Image 4] Arrangement for General Discussion

General Discussion (10:00~12:00)
Moderator : Sun-Jae Hwang, Senior Researcher, APPI/
Professor, Chungnam National University

□ Summary and Questions that were brought up

- The innovation of data collection methods and the diversification of data resources are a way of coping with these changing and challenging environments, and recent developments in census methodologies, such as the application of register-based data and paperless censuses, are also examples of the reaction to the challenges. However, there are some issues and problems associated with these transitions and new approaches that need to be resolved such as survey operation & management, Non-response issues & imputation, Privacy issues, etc.

- On the size of enumerators and the calculation of their workload

• (Canada) The enumerator is already aware of the night shift for the duration of the census, and the working conditions specified 22 hours of work regardless of day/night in the employment notice. No additional remuneration for night and weekend work is provided, but it can lead to better results because additional workload is reflected in the performance of the enumerator.
• (Singapore) Enumerators are hired by the hiring agency, and wages are paid by the National Statistical Office. In some cases, the working hours are longer than those of the NSO and they receive more wages than resident employees by getting paid additional allowances for travel expenses and additional work. The tree model is used to adjust the workload of the enumerator and prioritize the work.

- On the management/supervision of enumerators

• (Canada) The government advertises the enumerator employment in various media. Since the contents of the questionnaire survey are not complicated, the training for enumerator is conducted for 1 to 2 days. We also plan safety measures for enumerators when conducting

interviewer’ s visit survey.

- (United States) Employees are advised of the working conditions beforehand. The wage of the enumerator was higher than that of other part-time jobs, so it was easy to hire at 2010 Census.
- (Israel) Most of the research is conducted by telephone through outsourcing company. National Statistical Office manages the enumerators.
- (Singapore) Most of the undergraduate students are employed for a short period of about three months during their vacation. In the case of an elderly enumerator, electronic equipment is difficult to use, so it is advised to check their familiarity with of the pad (electronic equipment) and proficiency at the time of the hiring interview.

- On the any clear criteria for ‘absence non-response’ (e.g. the number of minimum visits)

- (Canada) Payment of enumerators is changed to hourly wages. In case of ‘Piece rate’ payment, it was difficult to inform about the salary at the time of enumerator recruitment, and the salary could not be guaranteed. NSO monitors the actual performance of the enumerator and complements the hourly wages through continuous performance evaluation.
- (United States) United States chose to use hourly wages for enumerators as well. We have chosen a way to give the enumerators a new survey every day so that they can have their own sense of ownership. Currently, the number of visit limit for survey is 6 as a maximum, and it is under consideration whether to change it.
- (Israel) In case of general survey, it is paid at an hourly rate. Because the minimum wage is paid, salaries are low compared to other fields. NSO encourages the way to visit new households rather than visiting one non-response household multiple times.
- (Singapore) In the case of Singapore, there is no fixed number of visits and the wage is paid as the number of responses(Piece rate), which causes the researchers to select only those households with high response rates.

- On the ‘hard-to-reach’ population groups (e.g. single-person household, dual-income households, the disabled, etc.)

- (Canada) Since 2016, only the short form has been applied. Considering the respondents to the questionnaire, it is necessary to omit inadequate questions that do not match the current situation. Separate Data Strategy is needed to fill in basic data using administrative data and complement the rest by the survey.
- (United States) Respondents who reside in social facilities such as nursing homes are not asked about the housing census but only the population survey. A face-to-face survey is mainly used and questions that are difficult to answer, such as income are excluded.
- (Singapore) Short form uses administrative data, and long form does not apply to social facilities such as nursing homes.
- (Israel) Collective resident census is conducted every two years.

- On Internet surveys (e.g. Quality assessment of internet surveys in comparison with face-to-face surveys)

- (United States) The most important information in the census survey is the number of family members, and there is minimum standard for information gathering such as age and gender.
- (Canada) In the case of critical questions among the 60 questions, there is a criterion deemed to be answered even if only two or three are answered. Preference is given to balance with quality, so do not carry out multiple survey methods simultaneously for one household.
- (Singapore) In the case of non-response, it will be forwarded to the call center, allowing the enumerator to visit. In some cases, only certain household members in the household are transferred. In this case, they are confirmed using the resident registration number.

Appendix 1. Workshop Programme

Innovative Data Collection for 2020 Round Censuses

: eCensus & Register-based Census

Time	Contents	
Day 1. Thursday, 22 November		
09:00-09:20	Registration	
09:20-09:30	**Opening Ceremony** Hyung Seog Kim, Director, International Statistical Cooperation Division, Statistics Korea Tai-Hun Kim, Head, Asia Pacific Population Institute	
09:30-10:00	Group Photo and Coffee Break (30m)	
10:00-12:00	**Session 1. eCensus and Innovative Data Collection (Ⅰ)** Chair Tai-Hun Kim, Head, Asia Pacific Population Institute	
	Korea (30m)	"Data Collection for Census in Korea: Data Sources and Collection Methods" Donghun Suh, Deputy Director, Population Census Division, Statistics Korea
	United States (30m)	"Reengineered Address Canvassing Operation and the Use of ICT for Census" Mark E. Asiala, Assistant Division Chief, American Community Survey Statistical Design, Decennial Statistical Studies Division, U.S. Census Bureau
	Discussion (1h)	BongOh Kye, Professor, Kookmin University Myung Jin Hwang, Professor, Korea University
12:00-13:30	Lunch	
13:30-15:30	**Session 2. eCensus and Innovative Data Collection (Ⅱ)** Chair Hye-Kyung Lee, President, The Population Association of Korea	
	Canada (30m)	"Collection Approaches for the Canadian Census of Population" Marc Hamel, Director General, Census Program, Census Operations and Informatics, Statistics Canada
	Singapore (30m)	"Paperless Census: Singapore's Experience" Seet Chia Sing, Director, Census Office, Singapore Department of Statistics
	Discussion (1h)	Seulki Choi, Professor, KDI School of Public Policy and Management KeunTae Kim, Professor, Korea University
15:30-15:50	Coffee Break (20m)	
15:50-17:50	**Session 3. Quality Assessment of Register-based Censuses** Chair Kwang-Hee Jun, Chungnam National University	
	Israel (30m)	"Quality Assessment of Register-based Census and Preparation for the 2020 Census Round" Daniel Pfeffermann, National Statistician, Central Bureau of Statistics in Israel
	Netherlands (30m)	"Quality Assessment of Register-based Census and Preparation for the 2020 Census Round" Eric S. Nordholt, Senior researcher and project leader of the Census, Division of Socio-economic and Spatial Statistics, Statistics Netherlands
	Discussion (1h)	Mingue Park, Professor, Korea University Young Il Lim, Statistics Korea
18:00-19:30	Dinner	
Day 2. Friday, 23 November		
10:00-12:00	**General Discussion** Moderator : SunJae Hwang, Professor, Chungnam National University	
12:00-13:30	Lunch	

Appendix 2. Topics for General Discussion

[Innovative Data Collection for 2020 Round Censuses: eCensus & Register-based Census]

Topics & Issues for "General Discussion"

Sun-Jae Hwang

Since its inceptions, population censuses have constantly innovated data collection methods and diversified data resources for quality improvement.

The goal of censuses appears to be simple as counting people and recording their characteristics at a specific period of time in a specified territory, but censuses have to have overcome constant challenges to achieve this seemingly simple goal, primarily due to changing survey environments.

Here are some challenges to "traditional" censuses:

- the cost of the traditional census has consistently and sharply risen in recent years;
- the response rates to a traditional census have lowered despite the rising cost;
- while demands for more timely and up-to-date census data are increasing, the traditional census, based on either a five-year or ten-year interval, does not live up to this expectation;
- last but not least, rapid changes in the general social, economic, and demographic environments surrounding census taking make the traditional census less sustainable and effective

The innovation of data collection methods and the diversification of data resources are a way of coping with these changing and challenging environments, and recent developments in census methodologies, such as the application of register-based data and paperless censuses, are also examples of the reaction to the challenges.

However, there are some issues and problems associated with these transitions and new approaches that need to be resolved:

- Survey operation & management
- Mode effects due to multimode data collection
- Non-response issues & imputation
- Quality assessment: validity, reliability, and consistency
- Privacy issues
- Etc.

[List of Questions by Donghun Suh]

1. On the size of enumerators and the calculation of their workload
- What is the proper size of enumerators after the completion of internet survey?
- Differential allocation of workload by regions?
- Any night-time survey? If so, extra compensation?

2. On the management/supervision of enumerators
- Enumerators are usually hired a year ahead: how do you manage them? Any interim roles?
- Any preparatory survey period for enumerators?

3. On the 'hard-to-reach' population groups (e.g. single-person household, dual-income households, the disabled, etc.)
- Any effective methods?
- Any clear criteria for 'absence non-response'? (e.g. the number of minimum visits)

4. On the possibilities of sample survey for 'social facility' enumeration district
- Same questionnaire/questions as a general enumeration district?

5. On Internet surveys
- Strategies to improve response rates?
- Quality assessment of internet surveys in comparison with face-to-face surveys?
- Do you allow partial/incomplete responses?

6. On the housing & administrative data
- Confirmation of vacant housing with administrative data?
- Confirmation of a secondary house with administrative data?

7. On the survey of separate households
- A 'weekend' couple & students living outside: survey as one or separate?
- Any difference between a register-based census and a sample survey?

8. On the 'CV' value of sample surveys
- No publication if the regional units are below the CV value?

9. On the quality of the combined census
- Necessity of the post-enumeration survey for sample surveys?
- What to do if the results of sample surveys are different from the register-based census?
- Quality assessment for administrative data: once in every year (partial) or five years (complete)?
- Effective methods for matching across different administrative data?

Appendix 3. Invited speakers' Profile

2020 인구주택총조사 조사방법 혁신을 위한 국제워크숍
11월 22-23일, 대전 인터시티 호텔

해외연사 프로필

1. Mark E. Asiala (미국)

소속 및 직위	Assistant Division Chief, American Community Survey Statistical Design, Decennial Statistical Studies, Division, U.S. Census Bureau
발표 주제	혁신된 가구주택기초조사 실시 (Reengineered Address Canvassing Operation and the Use of ICT for Census)

2. Marc Hamel (캐나다)

소속 및 직위	Director General, Census Program, Census Operations and Informatics, Statistics Canada
발표 주제	캐나다 인구센서스 자료수집 방식 (Collection Approaches for the Canadian Census of Population)

3. Seet Chia Sing (싱가포르, Ms.)

	소속 및 직위	Director, Census Office, Singapore Department of Statistics
	발표 주제	전자조사 실시에 따른 문제점 및 극복방법 (Paperless Census: Singapore’s Experience)

4. Daniel Pfeffermann

	소속 및 직위	National Statistician, Central Bureau of Statistics in Israel
	발표 주제	등록센서스의 품질 측정 및 2020 라운드 추진방향 (Quality Assessment of Register-based Census and Preparation for the 2020 Census Round)

5. Eric Schulte Nordholt (네덜란드)

	소속 및 직위	Senior researcher and project leader of the Census, Division of Socio-economic and Spatial Statistics, Statistics Netherlands
	발표 주제	등록센서스의 품질 측정 및 2020 라운드 추진방향 (Quality Assessment of Register-based Census and Preparation for the 2020 Census Round)