

Who Should We Focus on to Ensure a Better Count?:

The Experience of the 2000 Population And Housing Census in Korea

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1. Introduction

The census-taking environment in Korea has been deteriorating rapidly as the society becomes more diverse and complex. An increasing number of households consisting of one person or husband and wife both working makes enumerators visit the households more frequently and later at night. This may cause some reluctance from the enumerator to make such a visit. Also, more and more households are becoming more reluctant to respond due to growing awareness of privacy, becoming less trustful of the government, or less willing to spend time filling out forms. Such hard-to-enumerate environments threatened the success of the 2000 Census.

Thus, several measures were taken to tackle these problems in preparation for the 2000 Census throughout the whole procedure of census-taking. This ranged from planning, to form designing, training, and editing. Particularly, an emphasis was placed on public relations to mobilize respondents' cooperation by allocating 4.4 % of total budget, 3.7 billion *won* (2.0 million US dollars), to advertising.

This paper aims to show the characteristics of people who were omitted or duplicated in the 2000 Census in Korea and to provide a better understanding of focus groups in formulating plans and programs regarding enumeration, training and advertisement for the future censuses. The results of the post enumeration survey (PES) of the 2000 Census are used here to describe the demographic features of miscounted persons rather than to evaluate the census data.

2. Overview of the 2000 Population and Housing Census

Population data in Korea date back to the *Samhan* era over two thousand years ago and subsequently to the *Goryeo* (918-1393) and the *Joseon* dynasty (1392-1910). Due to the Family Registration System, which regulates the compulsory renewal of records at every 3 years, the

Joseon dynasty had a well maintained series of triennial population data. However, the 1925 Census is generally acknowledged as the first population census in Korea in terms of coverage and objective. The census has been conducted every 5 years since then and the 1960 Census saw several changes; i.e., adoption of a sampling method in census operation, use of a computer system, introduction of the PES, and being incorporated with the first Housing Census. In 1990, an Optical Mark Reading (OMR) technique was first used to hasten data capture.

The 2000 Census was conducted for 10 days between October 1 and 10. The part-time enumerators and supervisors reached over 145,000. Below are the major features of the 2000 Census in Korea.

Introduction of the self-enumeration method: The self-enumeration method instead of traditional face-to-face interview was selectively introduced to the households residing in apartments. This method could reduce the costs by 5.5 billion *won* (4.4 million US dollars) by employing fewer enumerators. To help respondents in filling out the forms, a toll-free telephone service was provided.

Improvement in the accuracy of data: The digital maps produced by the National Geography Institute were used for the delineation of enumeration districts (Eds), which contributed to minimizing omission and duplication of areas. As part of the efforts to enhance the accuracy of the count, the National Statistical Office (NSO) reinforced the role of supervisors in field operation and reduced the number of enumerators per supervisor from 15 persons in 1995 to 10 persons in 2000. Also, questionnaires were designed user-friendly not only in wording but also in size, color and binding. Another important measure first introduced in the 2000 Census was the utilization of multi-unit housing information. In this scheme, enumerators collect basic information on housing from a representative (e.g., the administrative office of an apartment complex) of a multi-unit house in advance and use it during the field operation. This new approach was evaluated to be quite successful in reducing respondents' burden as well as in improving data quality.

Changes in the data-capture method: The OMR method employed twice in Korean censuses was replaced by a decentralized PC entry on an out-sourcing basis. Due mainly to placing provincial data centers closer to the source of data, data processing was sped up to a large extent. The preliminary results based on summary sheets were released only two months after the census day. The reports of the short-forms will be released by October 2001 while those of long-forms by December 2001. According to this schedule, four months and nine months are an improvement on data release times compared to the 1995 Census release times.

New items added: There were 20 items for the short-form and 50 items for the long-form. These figures include the 22 new items that were used to make the 2000 Census more responsive to new policy demand in the 21st century, i.e., items related to a knowledge-based society (major field of study, duration of current work, etc.), information society (usage of computers, Internet, etc.), welfare for child and the elderly (way of caring for a child and supporter of the elderly, etc.) and so on.

Facilitation of more convenient access: Besides traditional printed materials, CD-ROMs and the Internet will serve as major vehicles for data dissemination. The 2000 Census homepage opened at www.nso.go.kr/census2000 to facilitate Internet-based management during the census-taking period is currently being redesigned for the data dissemination purpose.

3. Absolute Completeness of the 2000 Census Count

The PES of the 2000 Census was taken as of December 1, 2000, one month after the census day. The sample size of PES was 600 Eds (0.24%) and the PES employed a dependent method in which in-migrants were included whereas out-migrants were excluded. According to the results of PES, the omission rate was 3.3% while the erroneous inclusion rate was 1.7% in the 2000 Census. Gross enumeration error rate, which is the sum of omission rate and erroneous inclusion rate, was 5.0% whereas the net under-enumeration rate, which is the difference between omission rate and erroneous inclusion rate, was 1.6%. Although the value appears worse than the 1995 value, it is still seen to be acceptable, considering the deterioration in census-taking environment. The net under-enumeration rate was estimated to be 1.9% by the demographic analysis based on the registered birth, death and international migration data.

Table 1. Enumeration error rates in the Census estimated from PES: Korea, 1975-2000

	1975	1980	1985	1990	1995	2000
a. Omission (%)	3.9	3.5	2.1	3.4	3.1	3.3
b. Erroneous inclusion (%)	0.2	1.7	1.3	3.5	1.8	1.7
c. Net under-enumeration (a – b)	3.7	1.8	0.8	-0.1	1.3	1.6
d. Gross enumeration error (a + b)	4.1	5.2	3.4	6.9	4.9	5.0

4. Major Features of People Omitted or Erroneously Included

Based on recorded errors of enumerators, housewives showed the highest quality while those aged less than 20 or more than 60 or students appeared to be the worst enumerators in the 2000 Census. A distinctive aspect of people omitted and erroneously included is as follows:

One-fourth of omission and one-third of erroneous inclusion fell in the twenties age bracket: People in their twenties, those who have a highly migratory tendency, accounted for 25% of total omission and 37.2% of total erroneous inclusion. Those who were younger than 10 years old made up 13.9% out of total omission.

Householders and children were pronounced in miscount: Householders (32.0%) among people omitted and children (49.9%) among people erroneously included are the highest at each category.

One-person households were half of all households omitted: Household omissions are largely explained by the households residing in a detached dwelling (68.9%), or consisting of one-person (49.3%).

Table 2. Percent distribution of people who omitted or erroneously included by age and relations to householder: Korea, 1995-2000

	People omitted		People erroneously included	
	1995	2000	1995	2000
Total (%)	100.0	100.0	100.0	100.0
• By age				
0 - 9	13.5	13.9	9.5	7.1
10 - 19	14.0	14.0	17.2	15.0
20 - 29	27.5	25.0	35.1	37.2
30 - 39	18.1	16.2	17.6	16.8
40 - 49	9.1	13.0	8.4	10.7
50 - 59	6.1	6.7	5.2	5.1
60 - 69	5.5	5.4	3.4	4.5
70 +	6.2	5.9	3.5	3.7
• By relations to householder				
Householder	29.5	32.0	24.2	26.0
Spouse	14.5	14.4	10.6	9.8
Children	28.3	27.7	50.0	49.9
Parents	8.1	6.6	2.9	3.3
Relatives	12.7	14.4	8.7	8.7
Non-relatives	6.9	4.9	3.6	2.3

Table 3. Percent distribution of the households omitted by type of living quarter and family size: Korea, 1995-2000

	1995	2000
Total (%)	100.0	100.0
• By type of living quarter		
Detached dwelling	76.9	68.9
Apartment	4.3	14.6
Row house	3.4	3.3
Apartment unit in a private house	1.2	1.8
Dwelling unit in commercial bldg.	11.6	8.5
Others	2.5	2.8
• By family size		
One person	41.9	49.3
Two persons	22.2	21.3
Three persons	14.4	12.3
Four persons and more	21.5	17.2

5. Concluding Remarks

Now we have the focus group of population, in Korean context, emerged as above in census count. More appropriate guidelines for enumerators and more differential strategies for advertising are accordingly suggested to ensure for a better count in the future censuses.