Reducing Unit Nonresponse in Controlled Access Situations: An Experimental Study in South Korea

Sun-Woong Kim

Woo-Hyun Yoo

Eun-Hee Choi

Young-Je Woo

Sun-Young Lee

Ha-na Lee

Dongguk University Survey & Health Policy Research Center

Outline

- **Research Background**

- **Level of Noncontact and Refusal in Household Surveys**

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- **Procedures for Dealing with Controlled Access Situations**

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Research Background

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- Unit nonresponse in face-to-face household surveys using probability samples can affect the quality of estimates.

- Although researchers can use a variety of tools for reducing unit nonrespose, most efforts in this area have focused only on the design features to improve survey participation such as number of calls, prenotification, incentives, or mode switch.

- However, those tools can be ineffective when controlled access situations or facilities are encountered. For example, access by an interviewer can be physically blocked or impeded. Impediments may include guards or security systems.

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Research Background (Cont.)

- In the United States 17.2 percent of dwelling units had controlled access features (Cunninghan *et al*., 2005).

- In Korea, the number of housing units with access impediments has increased dramatically in recent years.

- About 60 percent of all households live in high-rise apartment buildings with locked central entrances (home security systems) or gatekeepers or both.

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Research Background (Cont.)

Research Background (Cont.)

Research Background (Cont.)

- Moreover, the proportion of non-at-homes during the day is very high and nearly a fourth of households have just one resident.

- Korea is one of the societies increasingly becoming security- and privacy-minded.

- In these situations a different strategy or effort is required to bring the sampled person into the respondent.

Research Background (Cont.)

- We present how using a special strategy based on an administrative system or process can increase response rates in a rare population survey on the use of illicit drugs in a large metropolitan city.

- Also, we show the results on survey quality improvements in using the strategy.

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Level of Noncontact and Refusal in Household Surveys

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Level of Noncontact and Refusal

- **Investigated using one of the largest household surveys in Korea**

- **With limited number of calls, only basic tools (e.g., carrying official letters by interviewers) are used for dealing with controlled access situations**
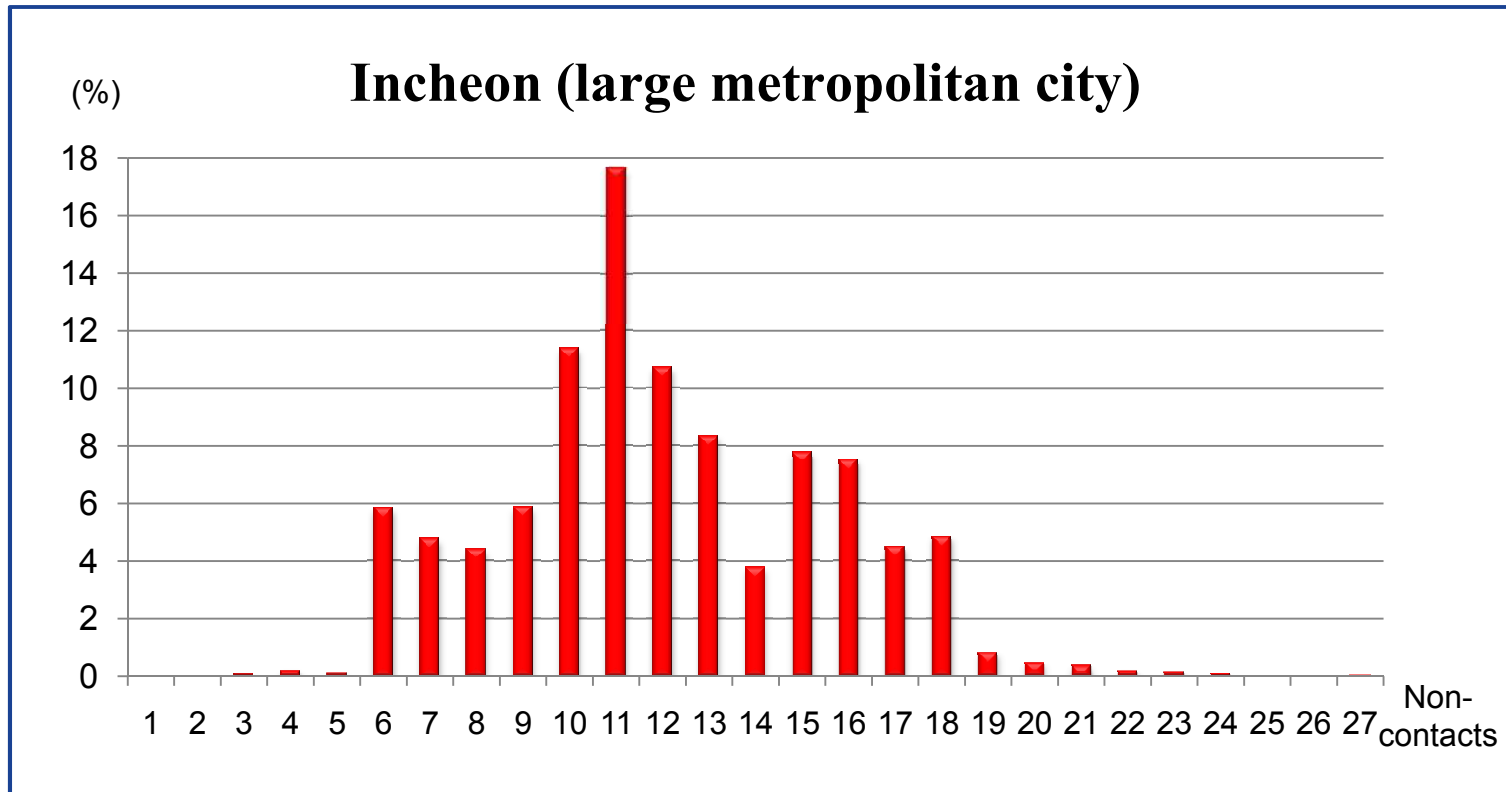
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Level of Noncontact and Refusal

- **Number of HHs with Noncontacts per Enumeration District (ED)**
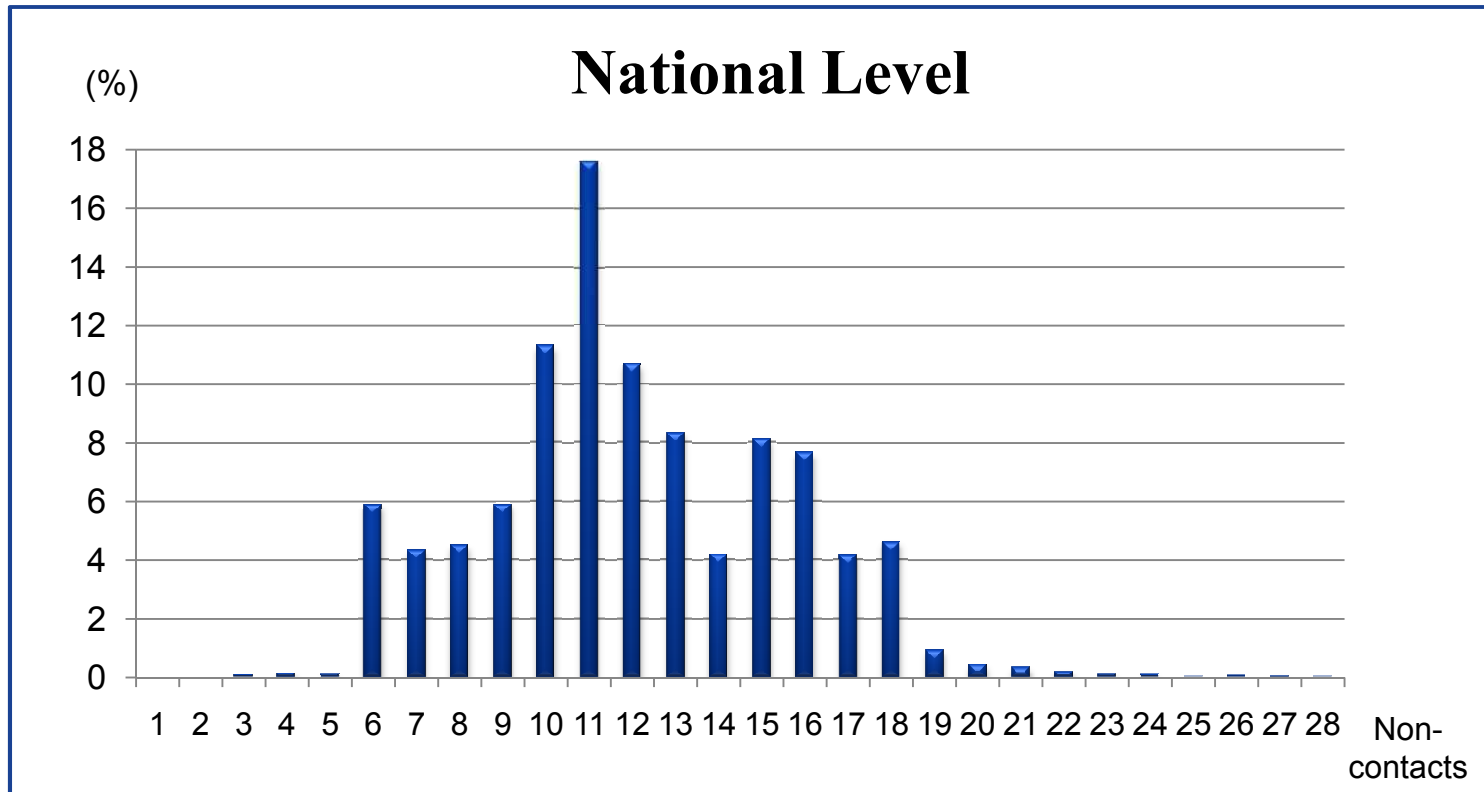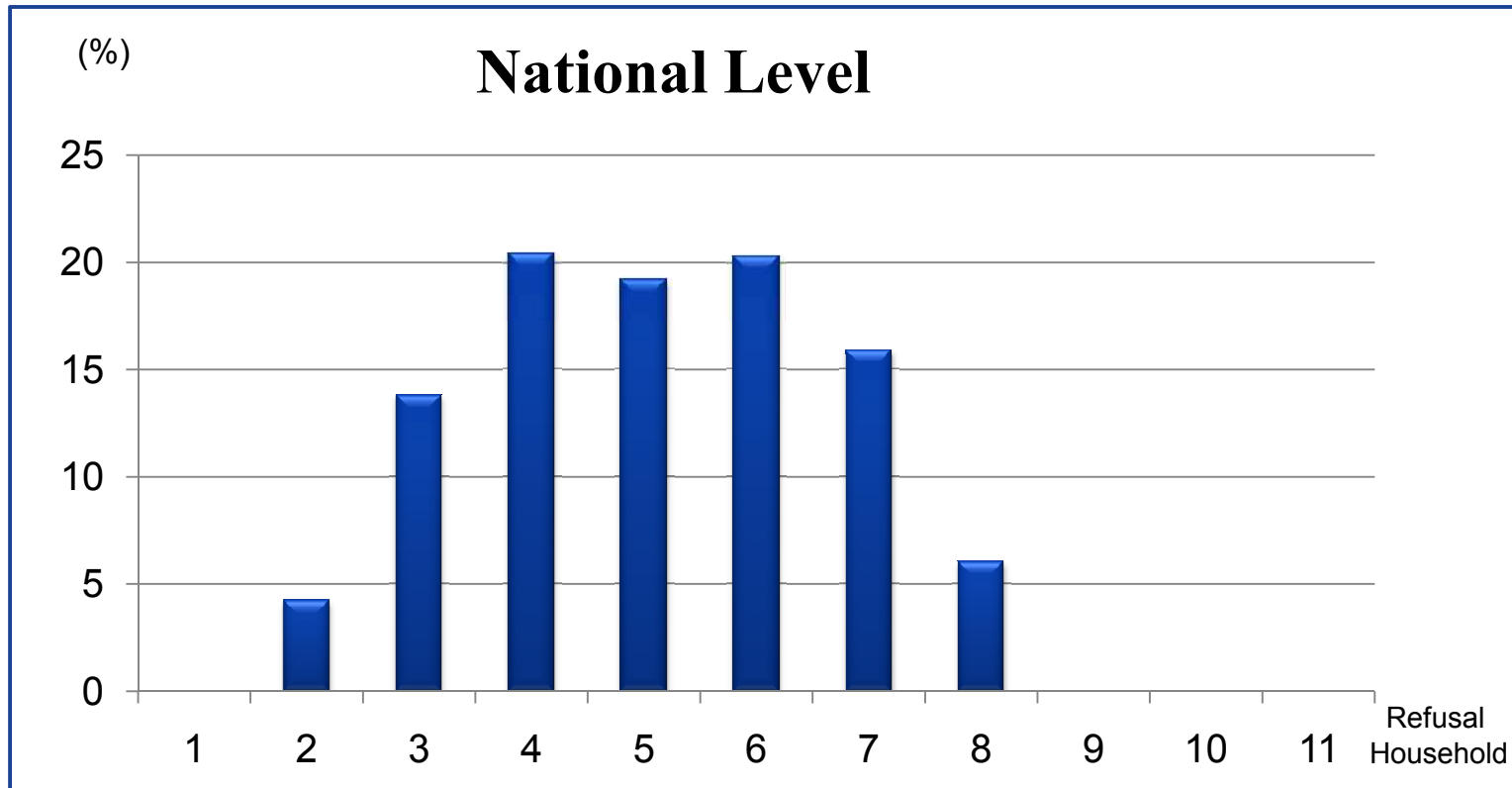

Note. Average Number of HHs in ED: 60

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Level of Noncontact and Refusal

● **Number of HHs with Noncontacts per ED**

Incheon (large metropolitan city)

(%)

Note. Average Number of HHs in ED: 60

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Level of Noncontact and Refusal

● **Number of HHs with Refusals per ED**

National Level

Level of Noncontact and Refusal

● **Number of HHs with Refusals per ED**
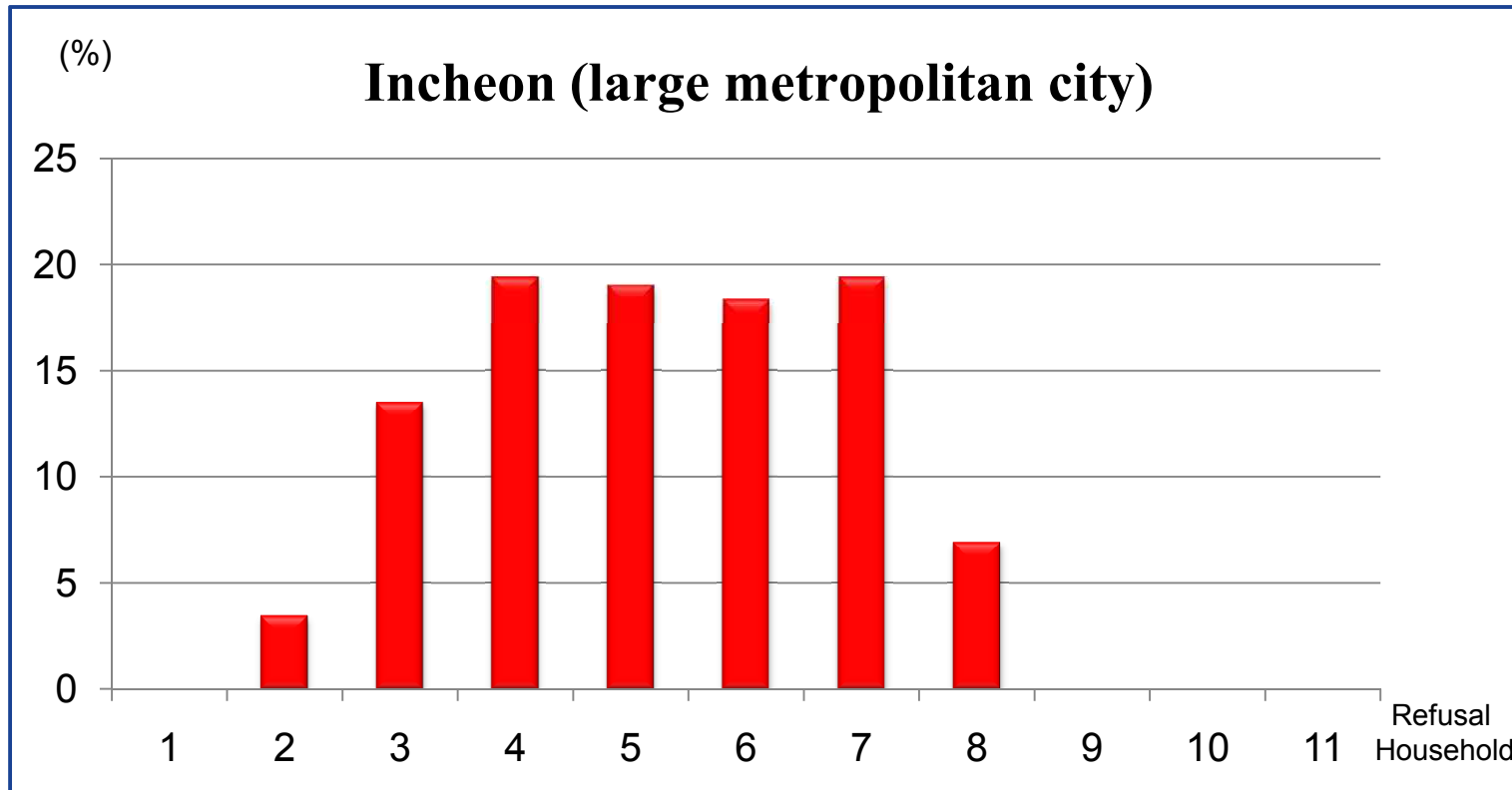
Survey Description

Survey Description

Survey of Health and Drug Use (SHDU)

- Sponsor: Ministry of Health and Welfare, South Korea
- Collector: Survey & Health Policy Research Center (SHPRC) , Dongguk University
- Purpose: Running a pilot study for investigating health status and use of illegal drugs
- Target Population: 835,391 HHs in Incheon
- Sample size: 746 households
- Sample design: Four-stage area sampling, within household selection
- Data collection period: October, November and December , 2014
- Mode : CAPI and CASI (computer-assisted self interviewing)

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Survey Description (Cont.)

- **Introduction in CAPI**

Survey Description (Cont.)

● **Household member listing and within-household respondent selection**

Procedures for Dealing with Controlled Access Situations

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Procedures for Dealing with CAS

■ The level of noncontact and refusal depends on the processes followed to make contact households.

■ Using a special strategy based on an administrative system or process to increase response rates in a rare population survey

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Procedures for Dealing with CAS (Cont.)

- **Step 1: Send official letters to lower level offices (City, Gu, and Dong) to ask for their cooperation before or during the survey.**

    - The official letters include a short description on the survey.

    - We especially ask for the cooperation of the "Dong" offices, which are the lowest administrative units, and describe the details on their roles.

Procedures for Dealing with CAS (Cont.)

- **Step2: Arrange the visit to "Dong" offices**

  - Construct the list of officers responsible for the management of heads of "Tongs (primary divisions of Dong)," based on the list of sampled households.

  - Verify the status of official letters, and deciding the best times to visit

Procedures for Dealing with CAS (Cont.)

- **Step 3: Visit "Dong" offices and obtain the information on heads of "Tongs."**

  - Explain the purpose of the survey.

  - Provide the list of sampled households.

  - Verify monthly meeting dates with heads of "Tongs" and ask their contact information.

  - The heads of "Tongs" usually visit households to give official information from the higher administrative units and often serve for their communities .

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Procedures for Dealing with CAS (Cont.)

Procedures for Dealing with CAS (Cont.)

- **Step 4: Participate in the monthly meeting with heads of "Tongs."**

  - Verify the heads of "Tongs" involved in the sampled households in advance.

  - Explain the purpose of the survey and their roles.

  - The most important parts in their roles is to deliver the official letter to the sampled households and to provide us some useful information of the households (e.g., telephone numbers or list of family members or their situations)

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Procedures for Dealing with CAS (Cont.)

Procedures for Dealing with CAS (Cont.)

- **Step 5: The heads of "Tongs" deliver the official letters on the survey to sampled households.**

  - The official letter is a short memo noticing the interviewer visit to households.

  - It is important to directly deliver it by the heads.

  - An advanced letter for a sample household is also delivered by interviewers.

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Procedures for Dealing with CAS (Cont.)

- **Step 6: Provide the list of heads of "Tongs" to the interviewers and train them how to cooperate with them.**

  - Some heads of "Tongs" ask the information on the interviewers.

  - Some of them may visit sampled households with interviewers or ask them survey cooperation.

  - If were unable to cooperate with heads of "Tongs," pursue cooperation through different ways (e.g., apartment administration, neighborhoods, women's society of apartment community, etc.).

Procedures for Dealing with CAS (Cont.)

- **Step 7: Regularly update the list of heads of "Tongs" and the one of sampled households in order to provide most recent information to heads or interviewers.**

  - Sometimes the list of heads do not match the sampled households.

  - Some sampled households are replaced during the survey period.

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Procedures for Dealing with CAS (Cont.)

- **Step 8: Supervisors keeps continuous contact between the heads of "Tongs" and interviewers.**

  - Supervisors record the status or level of cooperation of heads of "Tongs."

  - The incentives are offered to the heads of "Tongs."

Rules for Contacting Households

Rules for Contacting Households

- Supervisors decide the number of visits when the interviewers cannot contact the households.

- Days to access: weekdays (3 days), weekends (2 days)

- Timing of call attempts: Noon ~ 8:00 PM

Results

Results

- **Cooperation of heads of "Tongs"**

Num. of Sampled Dong Offices	Num. of Heads	Num. of Cooperative Heads
16	157	112 (71%)

Results (Cont.)

- **Number of visits for households**

	Num. of HHs	Num. of Visits
Completed households	746 (58.1%)	2,263 (46.6%)
Uncompleted households	539 (41.9%)	2,590 (53.4%)
Total	1,285 (100.0%)	4,853 (100.0%)

Results (Cont.)

● **Average Number of Visits per Completion**

Completed households	Number of visits (including uncompleted households)	Average number of visits per completion (including uncompleted households)
746	2,263 (4,853)	3.0 (6.5)

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Results (Cont.)

- **Distribution of visits for completed 746 HHs**

Visit	Percent
1st	29.2%
2nd	24.3%
3rd	17.7%
4th	8.3%
5th	5.8%
6th	5.8%
7th	3.6%
8th	1.6%
9th	2.0%
10th	0.8%
11th	0.3%
12th	0.5%
16th	0.1%

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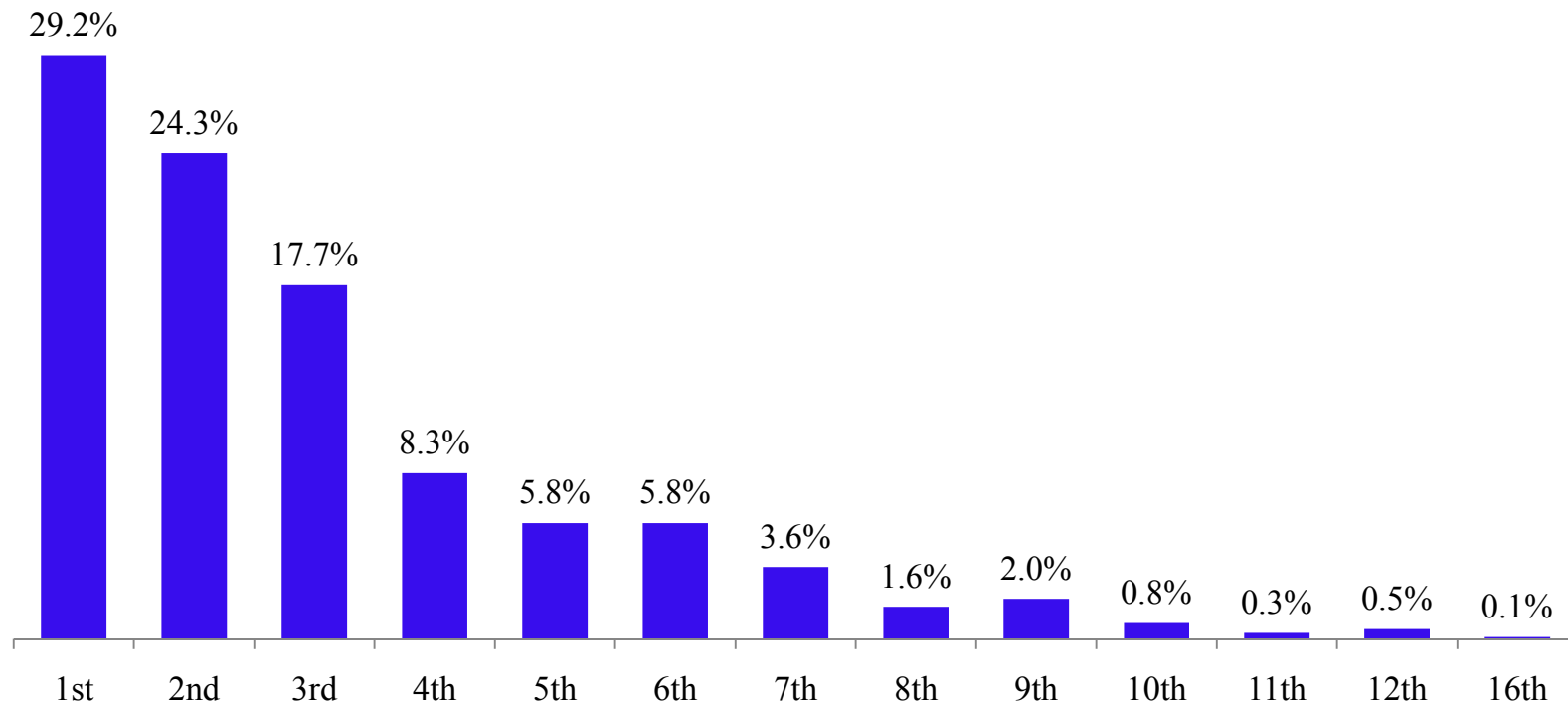
Results (Cont.)

- **Distribution of visits for uncompleted 539 HHs**

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	18th
	21.0%	11.7%	11.7%	7.4%	10.4%	10.9%	6.5%	5.8%	3.5%	3.7%	2.4%	1.9%	0.9%	1.3%	0.7%	0.2%
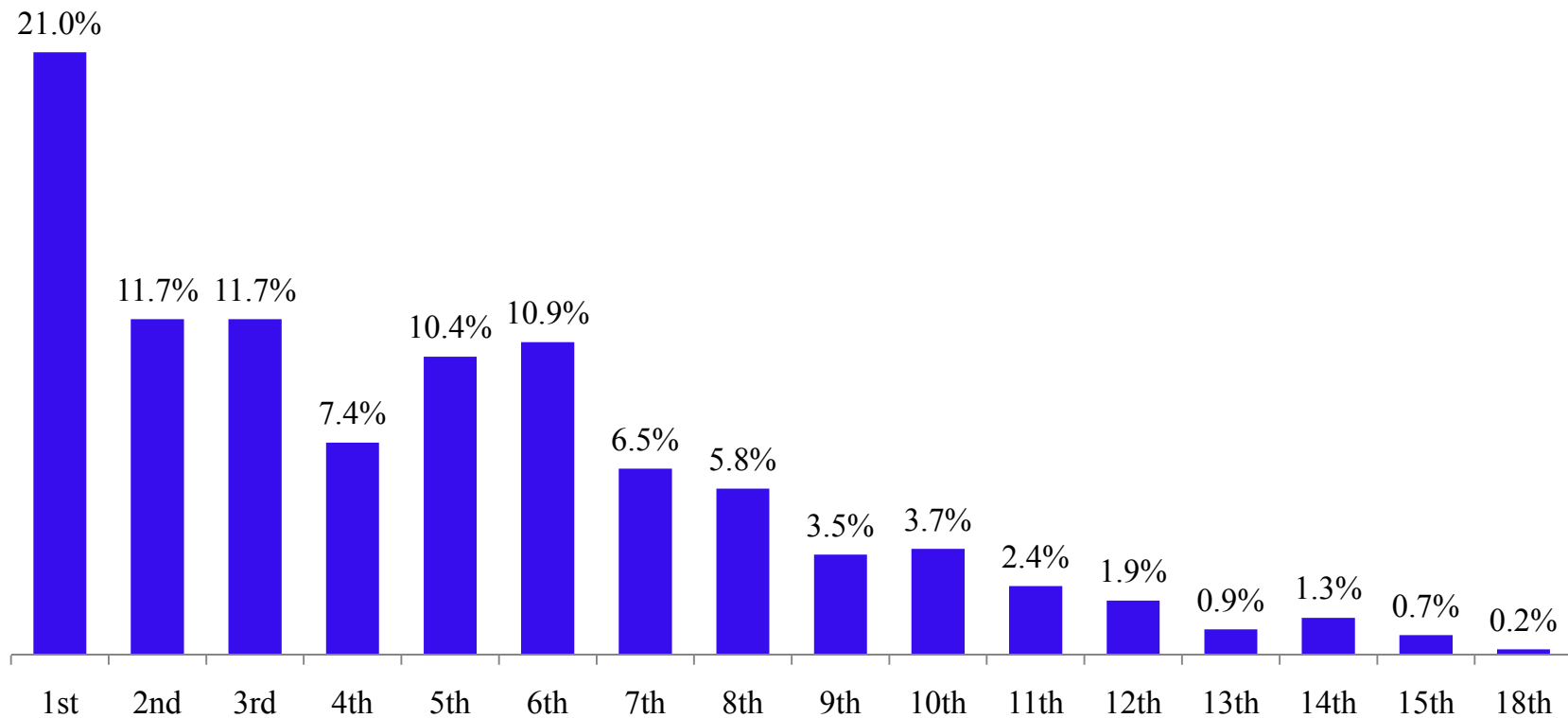
Results (Cont.)

- **Distribution of housing types for uncompleted 70 HHs with CAS**

	Num. (%)
Detached house (> 1 HHs)	0 (0)
Multiplex house (Villa)	24 (34.3)
Apartment	39 (55.7)
Other buildings	7 (10.0)
Total	70 (100.0)

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Results (Cont.)

● **Response Rates**

	Rates
RR2 (RR1)	62.9 (59.6)
COOP1	94.2
REF3	0.6

Response and cooperation rate are high, whereas refusal rate is very low.

Results (Cont.)

- **Comparison between Population and Sample Distributions**

  - **Gender**

	Sample		Population	
	Frequency	**Estimated Percent**	**Frequency**	**Percent**
Male	422	48.7	412683	49.4
Female	514	51.3	422708	50.6
Total	936	100.0	835,391	100.0

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Results (Cont.)

● **Comparison between Population and Sample Distributions**

  ● **Age**

	Sample		Population	
	Frequency	**Estimated Percent**	**Frequency**	**Percent**
20-29	128	19.3	161230	19.3
30-39	173	21.9	182951	21.9
40-49	183	24.4	203835	24.4
50-59	176	18.1	151206	18.1
60 or over	276	16.3	136169	16.3
Total	936	100.0	835,391	100.0

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Results (Cont.)

- **Differences of responses by number of calls**

  - **Gender**

	Calls						(%)
	1	2	3	4	5	6	> 6*
Male	46.2	45.2	46.8	47.5	48.1	48.7	48.7
Female	53.8	54.8	53.2	52.5	51.9	51.3	51.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* Maximum call :16

Results (Cont.)

- **Differences of responses by number of calls**

  - **Housing Type**

	Calls						(%)
	1	**2**	**3**	**4**	**5**	**6**	**> 6***
Detached house	6.3	7.1	8.1	7.9	7.9	7.7	7.3
Detached house (> 2 HHs)	16.3	14.8	14.1	12.4	12.4	12.4	12.3
Villa (multiplex house)	41.3	41.7	41.1	41.7	41.4	41.6	42.8
Apartment	33.8	33.3	34.3	35.4	35.8	35.8	35.3
Other buildings	2.3	3.1	2.4	2.6	2.5	2.5	2.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

* Maximum call :16

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Results (Cont.)

- **Differences of responses by number of calls**

  - **Disease treated in the last 12 months**

	Calls						(%)
	1	2	3	4	5	6	> 6*
Asthma	3.46	2.11	1.81	1.59	1.68	1.58	1.44
Allergic Rhinitis	7.26	5.22	4.84	4.66	4.69	4.50	4.89
Allergic Conjunctivitis	2.50	2.37	2.09	2.07	2.05	1.93	2.09
Cardiovascular Disease	2.39	1.89	1.53	1.39	1.35	1.31	1.19
Atopic Dermatitis	1.87	1.12	0.86	0.75	0.78	0.74	0.67
Thyroid disease	1.53	1.06	0.93	0.82	0.84	0.79	0.72

* Maximum call :16

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Results (Cont.)

● **Use of illegal drugs in life**

	Frequency	Estimated Percent	Standard Error
Total	24	2.64	0.61
Drugs	8	0.97	0.39
Medical Drugs	17	1.94	0.55

Results (Cont.)
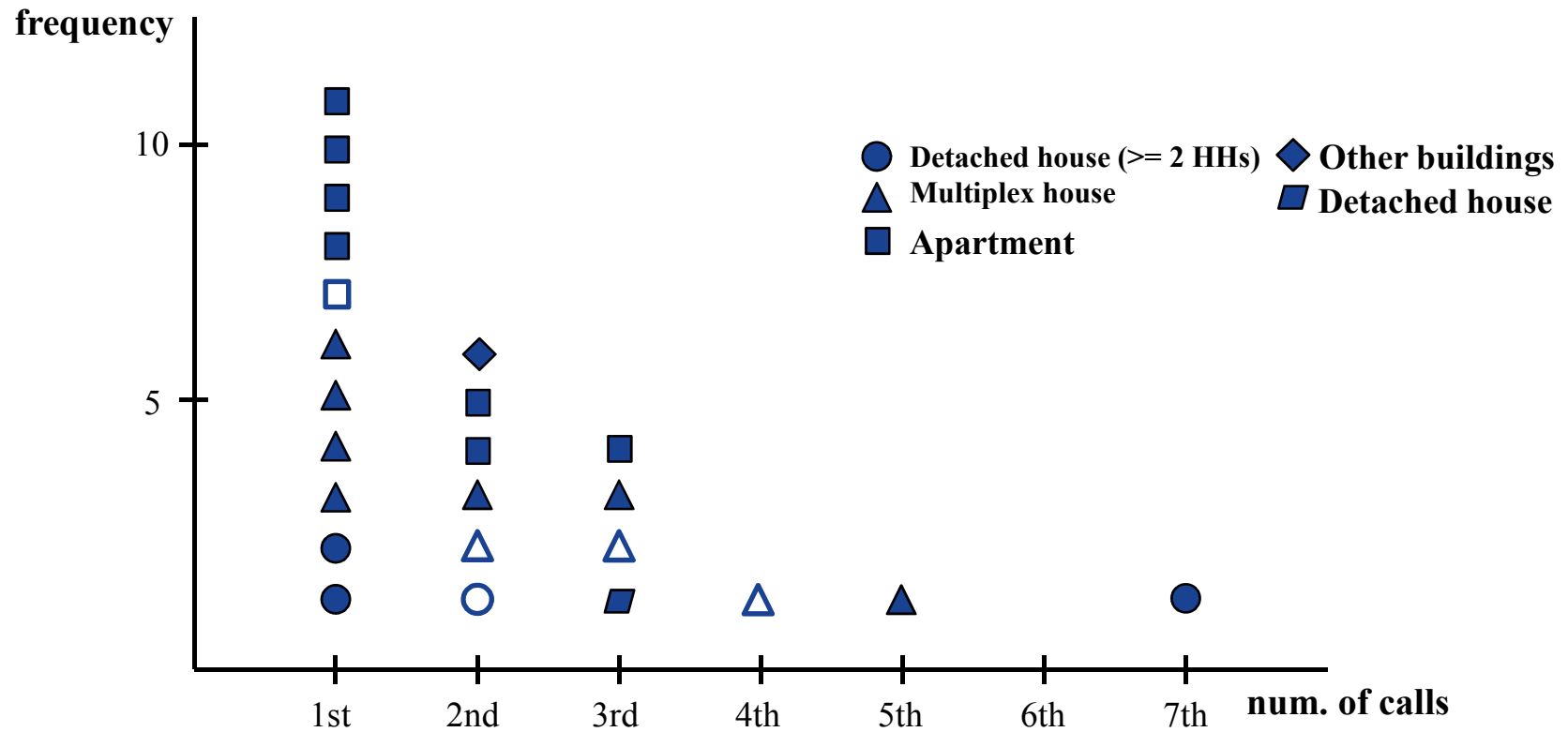
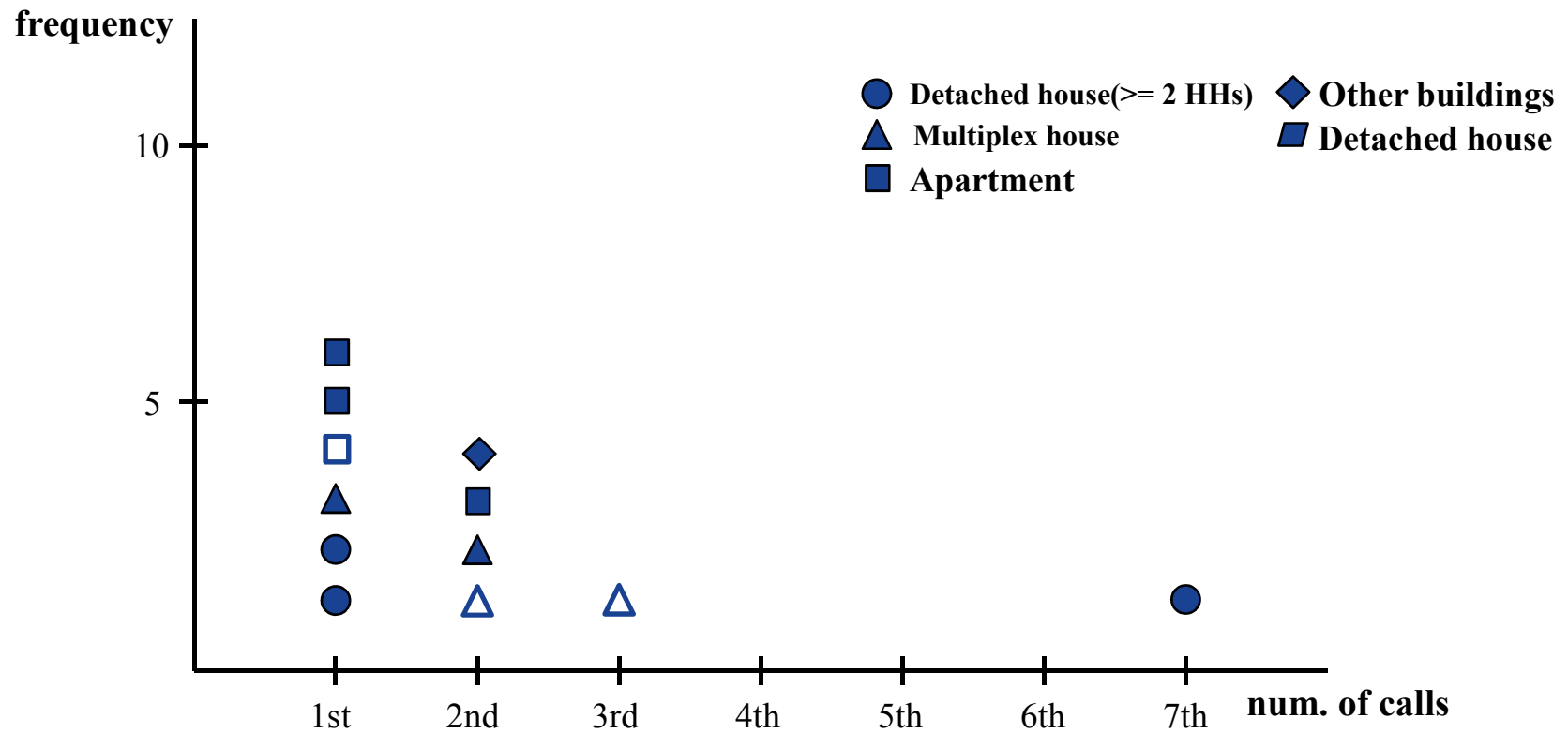* The blue-colored shapes are the houses having cooperation with "Heads of Tongs."

Results (Cont.)

- **Use of illegal drugs during last 12 months**

	Frequency	Estimated Percent	Standard Error
Total	12	1.28	0.44
Drugs	2	0.34	0.27
Medical Drugs	11	1.20	0.44

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Results (Cont.)

* The blue-colored shapes are the houses having cooperation with "Heads of Tongs."

Conclusions

Conclusions

● The strategy using procedures for dealing with controlled access situations based on an administrative system or process may be useful to achieve high response rates in household surveys. Of course, sufficient calls would be required.

● In spite of various controlled access or other situations in Korea, interviewers visited only 3.0 times per household on average in order to complete 746 households.

● The comparisons between population and sample estimates or differences of responses by number of calls or the others show a good quality of survey.

Conclusions (Cont.)

- This strategy will provide high response rates in a rare population survey like the use of illicit drugs or surveys for official statistics in Korea or some other countries, in societies becoming privacy- and security minded.

THANK YOU

Contact at sunwk@dongguk.edu