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Evaluating Coverage and Accuracy of Census List of Households using New IT

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SUMMARY

This paper presents results of the evaluation on the coverage and accuracy of the 2010 Korea Census list of households. Advanced information technology as well as sample design is used to estimate the net error of undercount or overcount in the Census list.

I. INTRODUCTION

In Korea the Census list of households is commonly used as sampling frames for small areas (e.g., enumeration districts (EDs)), randomly selected in national household surveys. It enables many surveys to be done cheaper and faster than is possible with on-site enumeration for building area sampling frames. But since the Census is conducted every five years, the list of households is often out of date in many regions, especially due to the construction for high-rise residential and apartment buildings. However, the coverage or accuracy of the list has never been estimated systematically in a national or provincial level.

In this paper, we evaluate the coverage and accuracy of the 2010 Census list of households based on highly advanced information technology (IT) including mailing address Internet information service and map service as well as a sophisticated sample design. Also, we illustrate an alternative, which uses a new map service called "Web Blocker" and may be more useful to measure undercount or overcount of the Census list of households or housing units in the near future.

II. STUDY DESIGN

A. Sample Design

Stratified two-stage unequal-probability sampling method is used to estimate the coverage or accuracy of the Census list of households. The first stage of sampling involves dividing Korea into 226 primary sampling units (PSUs). The PSUs are then grouped into 48 strata on the basis of survey information. Two or three PSUs are sampled in each stratum with π PS sampling. In the second

stage, a sample of EDs is drawn with probability proportional to size sampling with replacement. The number of the selected EDs is 4,644. These EDs have about 60 households on average.

B. Using Internet Information Service

The detailed maps with new address information on the Internet services showing the location of individual households open to the public are matched to the Census list of households in each selected ED. Figure 1 shows an example of new address information.

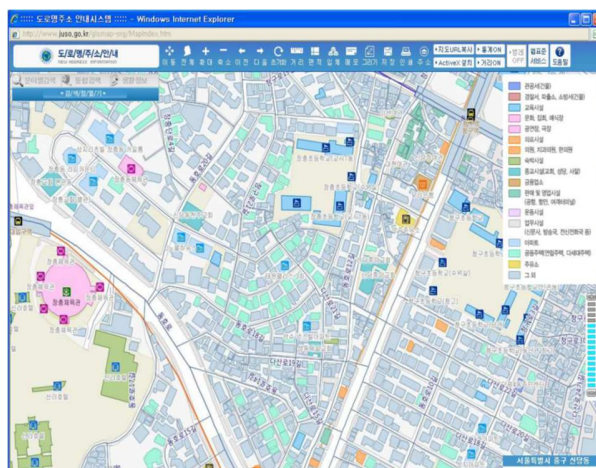


Figure 1: New Address Information

III. CONCLUSIONS

New IT offers significant reductions in time and cost of evaluating the Census coverage as compared with a post-enumeration survey based on on-site enumeration. Also, we may use a map service called "Web Blocker" to be more accurate in checking the coverage.

REFERENCES

1. Mule, V. T., "U.S. Census Coverage Measurement Survey Plans," paper presented in the *Joint Statistical Meetings*, pp. 121-135, 2010.