CHAPTER 2
STATISTICAL METHODOLOGY

2.1 Target Population

The Information and Communication Technology Survey in Household has coverage private households in municipal area and non municipal area. The total sample household is 83,880 households. Data were collected by interviewing heads of households and members of households who were 6 years old or over by enumerators from the National Statistical Office.

2.2 Reference Period

During 3 months before interview refers to duration counting backward from the interviewing day for 3 months.

During 12 months before interview refers to duration counting backward from the interviewing day for 12 months.

2.3 Definitions

1. Computer refers to an automatic electronic devices that solves both easy and complex problems by using mathematical methods. Therefore, computer is an electronic device made to work for human in terms of computation and memorization both number and text for the next time use. Furthermore, it has other capabilities such as comparing logic, sending/receiving data, storing data and computing data.

Presently, there are many models of computers and many companies producing computers. Accordingly, computers have various looks and characteristics. However the major computers used are:

Personal Computer	Notebook	Tablet

2. Internet refers to a world-wide public computer network that has the same standard of transferring data. Each computer can send or receive data in various types such as text, graphic image, and sound. Users can also promptly searching information via internet. In this information era, the different type of media has been developed to accommodate communication. The communication vie telephone only is no longer enough. It needs more types of communication such as image, sound, and text. Computer and internet access can serve this demand.

3. Use of computer refers to using Personal Computer (PC), Notebook and Tablet.

4. The number of mobile phone refers to the number of mobile phone possessed by members of household including mobile phone without calling system installed. Mobile phone must be functional in the interviewing day. It can be borrowed, bought by other persons or given by offices. It can be in any models or system. Broken mobile phone, mobile phone in repairing process and inaccessible mobile phone are not included.

5. Internet access refers to internet access in computer (personal Computer (PC), Notebook and Tablet) possessed in household regardless of how they receive internet access such as paying to subscribe with internet providers or receiving permission to access internet via educational institution or office system. Internet connection can be classified 2 types as follows:

1)..Broadband ADSL (Asymmetric Digital Subscriber Line) refers to communication technology that transfers in high speed in digital format. User can communicate via internet and remote network with high speed bandwidth starting at 256 Kbps up as follows:

- Internet service via DSL (SDSL, ADSL, VDSL), Cable Modem, Leased line, Satellite Internet, Fiber optic cable, Fixed wireless, WIMAX.

- Wireless mobile Internet services via mobile phones 3G such as WCDMA, EV-DO.

2) Narrowband refers to using a modem to dial-up connection and during using internet, telephone line cannot be used Internet access Analogue modem, ISDN and Wireless mobile Internet services via mobile phones 2G, 2.5G such as GSM, CDMA, GPRS.

6. The number of fixed line telephone numbers refers to the number of fixed line telephone number possessed in household, which were functional in the interviewing day, not including additional attached telephone or telephone that cannot connect to others.

7. The number of fax in household refers to the number of faxed possessed in household, which were functional in the interviewing day and can be borrowed, bought by other persons or given by offices, not including broken fax or fax in repairing process.

8. The number of computer in household refers to the number of computers possessed by household, which were functional in the interviewing day and can be borrowed, bought by other persons or given by offices. Only Personal Computer (PC), Notebook and Tablet not including broken computer, computer in repairing process and business computer such as computer provided in internet cafes.

2.4 Sample Design

A Stratified Two-Stage Sampling was adopted for the survey (see details in Appendix A). Provinces were constituted strata. Each stratum (excluding Bangkok Metropolis) was divided into two parts according to the type of local administration, namely municipal areas and non-municipal areas.

At the primary sampling state, primary sampling units were enumeration areas (EAs). The sampling frame for selecting samples was derived from the 2010 population census. This frame was updated from other surveys to be the present. The total number of sampled enumeration areas was 5,970 EAs.

At the secondary sampling state, private households were secondary sampling units. In municipal areas, 16 households were selected to be the samples per EA. Meanwhile, in non-municipal areas, 12 households were selected per EA.

2.5 Data Items

Questionnaire in this project includes 7 major sections :

Section 1   Characteristics of member household

Section 2   Education

Section 3   Work

Section 4   Using Computer

Section 5   Using Internet

Section 6   Using mobile phone

Section 7   The use of information and communication technology in household

2.6 Data Collection

This survey was conducted throughout country during in January, February and March 2016. The data collection was face-to-face interview with head of household or members of the household by the high experienced interviewers. Face-to-face data collection was historically paper-based, but in 1st quarter of 2015, NSO has started using tablet offering the advantages of data entry during the interview and consistency.

2.7 Data Processing

The survey was a sample survey. So to refer to population, a weight for each sample unit was needed. There were 3 steps:

1. Calculation design weight or base weight and inverse selection probabilities for each state of selected sampling unit were calculated.

2. Adjustment for non-response and base weights were adjusted to compensate for non-response households

3. Post-stratification calibration adjustment was the final step. The base weight adjusted by non-response data was further adjusted by using projected population, classified by grouped age, sex, region and administration.

Before the weighting process, row data was checked relating to structural check and possible code checks. All fields were then checked by a data dictionary which included. Each record was checked by certain conditions.

Any error would be listed for correction, ensuring both accuracy and completeness.

2.8 Limitation of the data

The Information and Communication Technology Survey in Household is a household sample survey. The estimates from a sample survey are affected by two types of error: non-sampling errors, and sampling errors. *Non-sampling errors* are the results of mistakes made in implementing data collection and data processing, such as response errors, non-response errors, interviewer recording errors, processing errors, etc.

Although numerous efforts were made during the implementation of the ICT survey to minimize those error, non-sampling errors are impossible to avoid and difficult to evaluate statistically.

The sample of respondents selected in this survey is only one of the samples that could have been selected from the same population, using the same design and sample size. Each of these samples would yield results that differ somewhat

from the results of the actual sample selected. *Sampling errors* are a measure of the variability between all possible sample. Therefore, users should be aware of the errors that may occur in the sample survey.

Data presented in this report from processing of the sample households were selected and weighted by the statistical theory. So , in each table may differ due to rounding of decimal.