

# Methodology

## 1. Sample Design

A Stratified Two-stage Sampling was adopted for the survey. Provinces were considered to be constituted strata. There were altogether 76 strata, each stratum was divided into two parts according to the type of local administration, namely, municipal areas, and non-municipal areas.

### 1) Selection of Primary Sampling Units

The sample selection of blocks/villages was performed separately and independently in each part by using probability proportional to the total number of households in that block or village.

### 2) Selection of Secondary Sampling Units

In this stage, private households were the ultimate sampling units. Households in every sample block and village were listed to serve as the sampling frame then the set of households was rearranged by size of household (classified by number of household members) and type of economic household (determined on the basis of the occupation type which produces the highest income in the household), Finally private sampled households were selected by using the systematic method in each type of local administration with the following sample sizes :

- (1) 15 households from each of sample blocks in municipal areas
- (2) 10 households from each of sample villages in non-municipal areas

The total number of private sampled households for the whole year were 51,970 households.

## 2. Method of Estimation

The results of the survey were presented at regional levels and Whole Kingdom separately for Bangkok Metropolitan and the three provinces (Nonthaburi, Pathum Thani and Samut Prakan) and other regions, i.e. Central, Northern, Northeastern and Southern region. The estimation processes were the following stages:

### 1) Estimation of Total

Let  $k = 1, 2, 3, \dots, m_{hij}$  (sample / village)  
 $j = 1, 2$  (type of local administration)  
 $i = 1, 2, 3, \dots, A_h$  (province)  
 $h = 1, 2, 3, 4, 5$  (region)

(1) Adjusted estimate of the total number of characteristic X of household for the  $h^{\text{th}}$  region was based on the formula :

$$x_h'' = \sum_{i=1}^{A_h} \sum_{j=1}^2 \frac{x'_{hij}}{y'_{hij}} Y_{hij} \dots\dots\dots(1)$$

where  $Y_{hij}$  is the estimate, based on the population projection, of the total number of households in the  $j^{\text{th}}$  area,  $i^{\text{th}}$  province,  $h^{\text{th}}$  region.

$x'_{hij}$  is the ordinary estimate of the total number of characteristic X of household in the  $j^{\text{th}}$  area,  $i^{\text{th}}$  province,  $h^{\text{th}}$  region.

$$x'_{hij} = \frac{1}{m_{hij}} \sum_{k=1}^{m_{hij}} \frac{1}{P_{hijk}} \frac{N_{hijk}}{n_{hijk}} x_{hijk}$$

$y'_{hij}$  is the ordinary estimate of the total number of households in the  $j^{\text{th}}$  area,  $i^{\text{th}}$  province,  $h^{\text{th}}$  region.

$$y'_{hij} = \frac{1}{m_{hij}} \sum_{k=1}^{m_{hij}} \frac{1}{P_{hijk}} \frac{N_{hijk}}{n_{hijk}} n'_{hijk}$$

that  $x_{hijk}$  is the characteristic X of every sample household in the  $k^{\text{th}}$  sample block / village,  $j^{\text{th}}$  area,  $i^{\text{th}}$  province,  $h^{\text{th}}$  region.

$N_{hijk}$  is the number of listing households in the  $k^{\text{th}}$  sample block / village,  $j^{\text{th}}$  area,  $i^{\text{th}}$  province,  $h^{\text{th}}$  region.

$n_{hijk}$  is the number of enumerating sample households in the  $k^{\text{th}}$  sample block / village,  $j^{\text{th}}$  area,  $i^{\text{th}}$  province,  $h^{\text{th}}$  region.

$P_{hijk}$  is the probability of selection of the  $k^{\text{th}}$  sample block / village,  $j^{\text{th}}$  area,  $i^{\text{th}}$  province,  $h^{\text{th}}$  region.

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<sup>1/</sup> Population Projections for Thailand 1990 - 2020, National Economics and Social Development Board

$m_{hij}$  is the number of sample blocks / villages in the  $j^{\text{th}}$  area,  
 $i^{\text{th}}$  province,  $h^{\text{th}}$  region.

$n'_{hijk}$  is the number of the interviewed households in the  $k^{\text{th}}$  sample block / village,  
 $j^{\text{th}}$  area,  $i^{\text{th}}$  province,  $h^{\text{th}}$  region.

- (2) Adjusted estimate of the total number of characteristic X of household for the whole kingdom was based on the formula :

$$x'' = \sum_{h=1}^5 x''_h \dots\dots\dots(2)$$

## 2) Estimation of Average

- (1) The estimate of the average of characteristic X per household for the  $h^{\text{th}}$  region was based on the formula :

$$\bar{x}_h = \frac{x''_h}{Y_h} \dots\dots\dots(3)$$

where  $Y_h$  is the estimate, based on the population projection, of the total number of households in the  $h^{\text{th}}$  region

$$Y_h = \sum_{i=1}^{A_h} \sum_{j=1}^2 Y_{hij}$$

- (2) The estimate of the average of characteristic X per household for the whole kingdom was based on the formula :

$$\bar{x} = \frac{x''}{Y} \dots\dots\dots(4)$$

where  $Y$  is the estimate, based on the population projection, of the total number of households in the whole kingdom

$$Y = \sum_{h=1}^5 Y_h$$

### 3. Annual Percentage Change

$$= \left\{ \left[ \frac{\text{Value in 2007}}{\text{Value in 2006}} \right] - 1 \right\} \times 100$$

### 4. Real Income

$$= \frac{\text{Consumer Price Index in 2006}}{\text{Consumer Price Index in 2007}} \times \text{Income in 2007}$$

### 5. Data Collection

The sample of about 52,000 households, in both municipal and non-municipal area, was divided into twelve equally representative sub-samples. Each sub-household group was interviewed for the period of one-month. The survey data was collected by an interviewing method. The interviewers were sent out to interview the household head or other household members of the sample households. The period of data collection started from January of December 2007.

### 6. Data Processing

All recorded questionnaires which had already been reviewed, edited and encoded from the field operators before sending the completed questionnaires to the NSO headquarter. At the central office, they were examined for completeness and consistency in all details. Descriptive information was numerically coded and then was transferred into computer's media for data processing. All raw data were computerizedly edited for the final review then tabulations were prepared. After several stages of data correction, the results were then tabulated.