

1.1 Survey methodology

A two stage stratified random sample design was used in the survey. Urban, Rural and Estate sectors of the district are the domains for stratification. The sample frame is the list of buildings that were prepared for the Census of Population and Housing 2001.

Selection of Primary Sampling Units (PSU)

Primary sampling units are the **census blocks** prepared for the Census of Population and Housing - 2001. The sample frame, which is a collection of all census blocks in the domain, was used for the selection of primary sampling units. A sample of 2010 primary sampling units was selected from the sampling frame for the survey.

Selection of Secondary Sampling Units (SSU)

Secondary Sampling Units are the **housing units** in the selected 2010 primary sampling units (census blocks). From each primary sampling unit 10 housing units (SSU) were selected for the survey.

Sample allocation

Allocation of the number of Primary Sampling Units for the districts and sectors were done proportionately to the number of housing units and the standard deviation of the income values reported in the respective domains in the Household income and Expenditure survey 1995/96 (Neymann Allocation). The district sample was equally distributed among the 12 monthly rounds. Table 1.1 gives the sample distribution by district.

Table 1.1: Sample allocation (for 12 months) among districts.

District	Housing units	District	Housing units
Total	20100	Hambantota	780
Colombo	2740	Kurunegala	1490
Gampaha	1910	Puttlam	870
Kalutara	1510	Anuradhapura	840
Kandy	1740	Polonnaruwa	650
Matale	760	Badulla	980
Nuwara Eliya	930	Moneragala	640
Galle	1050	Ratnapura	1570
Matara	760	Kegalle	880

1.2 Estimation procedure

Let \hat{X}_{jk} be the estimate of any given characteristic for j^{th} district for the k^{th} month.

This could be given by,

$$\begin{aligned}\hat{X}_{jk} = & \frac{1}{m_{jk(u)}} \sum_{h(u)=1}^{m_{jk(u)}} \frac{1}{P_{h(u)}} \frac{N_{h(u)}}{n_{h(u)}} \sum_{i(u)=1}^{n_{h(u)}} X_{hi(u)} \\ & + \frac{1}{m_{jk(r)}} \sum_{h(r)=1}^{m_{jk(r)}} \frac{1}{P_{h(r)}} \frac{N_{h(r)}}{n_{h(r)}} \sum_{i(r)=1}^{n_{h(r)}} X_{hi(r)} \\ & + \frac{1}{m_{jk(e)}} \sum_{h(e)=1}^{m_{jk(e)}} \frac{1}{P_{h(e)}} \frac{N_{h(e)}}{n_{h(e)}} \sum_{i(e)=1}^{n_{h(e)}} X_{hi(e)}\end{aligned}$$

Where

$m_{jk(u)}$ = Number of census blocks selected from the urban sector of the j^{th} district for the k^{th} survey month.

$P_{h(u)}$ = Selection probability of the h^{th} census block in the urban sector.

$$P_{h(u)} = \frac{S_{jh(u)}}{\sum_{h=1}^{M_{jh(u)}} S_{jh(u)}}$$

$S_{jh(u)}$ = Measure of size (number of housing units) of the h^{th} census block in the urban sector of the j^{th} district.

$M_{jh(u)}$ = Total number of census blocks in urban sector of the j^{th} district.

$N_{h(u)}$ = Total number of housing units listed in the h^{th} census block in the urban sector.

$n_{h(u)}$ = Number of housing units selected from the h^{th} census block in the urban sector.

$X_{hi(u)}$ = The observed value for the i^{th} sample household in the h^{th} census block in the urban sector.

$m_{jk(r)}$, $P_{h(r)}$, $S_{jh(r)}$, $M_{jh(r)}$, $N_{h(r)}$, $n_{h(r)}$, and $X_{hi(r)}$ are corresponding terms for the rural sector and $m_{jk(e)}$, $P_{h(e)}$, $S_{jh(e)}$, $M_{jh(e)}$, $N_{h(e)}$, $n_{h(e)}$, and $X_{hi(e)}$ are corresponding terms for the estate sector. The estimate for the total value of a characteristic for the country for month k ,

$$\hat{X}_k = \sum_{j=1}^{17} \hat{X}_{jk} \quad \text{--- (1)}$$

The estimate for the total value of a characteristic for the j^{th} district, based on all 12 rounds.

$$\hat{X}_j = \frac{1}{12} \sum_{k=1}^{12} \hat{X}_{jk} \quad \text{--- (2)}$$

The total estimate for the total value of a characteristic for the urban sector for the country, based on all 12 rounds.

$$\hat{X}_u = \frac{1}{12} \sum_{k=1}^{12} \sum_{j=1}^{17} \hat{X}_{jk(u)} \quad \text{--- (3)}$$

Where

$$\hat{X}_{jk(u)} = \frac{1}{m_{jk(u)}} \sum_{h(u)=1}^{m_{jk(u)}} \frac{1}{P_{h(u)}} \frac{N_{h(u)}}{n_{h(u)}} \sum_{i(u)=1}^{n_{h(u)}} X_{hi(u)}$$

\hat{X}_r , \hat{X}_e Similarly and Rural and Estate sector estimates for the country can be obtained.

Adjustment for unit non-response

The occurrence of unit non-response was determined by examining the final result code recorded under control data section of the schedule. Based on the final result codes the households were grouped into the following categories, which were used as a basis for adjusting for the unit non-response.

Category and description	Result code
1. Schedule completed	1
2. Housing unit demolished or vacant	6
3. Unable to complete schedule, refusal, temporarily away etc.	2,3,4,5,9

Category 1 and 2

These were considered as fully accounted for as a schedule was completed to the extent required by the situation at the time of interview and therefore no adjustment was necessary.

Category 3

This is incomplete therefore, a non-response adjustment was made for this category.

The assumption made here for the adjustment of non-response was the proportion of households in category 3 is the same as the corresponding proportion for sample households in category 1. This assumption is applied on a block-by-block basis separately for urban, rural and estate sectors.

The block weight before adjusting for unit non-response was

$$W'_h = \frac{1}{m_{jk}} \sum_{h=1}^{m_k} \frac{1}{P_h} \frac{N_h}{n_h}$$

Where

N_h = Total number of housing units listed in block h.

n_h = Number of housing units selected in block h.

The revised weight should take the form

$$W_h = W'_h \left(\frac{n^1_h - n_{h2}}{n_{h1}} \right)$$

Where

n_{h1} = Number of sample households in category 1.

n_{h2} = Number of sample households in category 2.

n^1_h = Total number of households in all categories (category 1, 2 and 3) (n_h)