

## Appendix 1

### ESTIMATION PROCEDURE

The total value of a variable was estimated for each district in the two strata (urban and rural) as follows:

#### Urban Sector:

The estimated total value of a variable is given by

$$\hat{Y}_k = \sum_{S=1}^{L_k} Y_{ks} = \sum_{S=1}^{L_k} \frac{1}{n_{ks}} \sum_{i=1}^{n_{ks}} \frac{Y_{ksi}}{P_{ksi}}$$

Where the notation is as follows:

- K - district
- S - stratum
- i - block
- j - housing unit
- $m_{ksi}$  - number of HU's included in the sample in the ith block in Sth stratum and Kth district.
- $n_{ks}$  - number of C.B. selected in the Sth stratum, Kth district.
- $M_{ksi}$  - size of the ith block before updating.  
(number of HU's in the ith block as at 1981 Census)
- $M_{ksi}^1$  - size of the ith block after updating.
- $L_k$  - number of strata in the Kth district.
- $N_{ks}$  - number of C.B.'s in the Sth stratum in Kth district.
- $Y_{ksij}$  - Value of the variable for the jth respondent in the ith block, Sth stratum and Kth district.

$$Y_{ksi}^1 = \frac{(M_{ksi}^1)}{(m_{ksi})} \sum_{j=1}^{m_{ksi}} Y_{ksij} ; \text{ and}$$

$$P_{ksi} = \frac{M_{ksi}}{N_{ks}} \sum_{i=1}^{n_{ks}} M_{ksi}$$

#### Rural Sector:

For the rural sector the estimating equation was

$$\hat{Y}_k = \sum_{S=1}^{L_k} \hat{Y}_{ks} = \sum_{S=1}^{L_k} \frac{1}{n_{ks}} \sum_{i=1}^{n_{ks}} \frac{Y_{ksi}^1}{P_{ksi}}$$

Where

- $m_{ksi}$  - number of HU's included in the cluster.
- $A_{ksi}$  - number of clusters formed in the ith block in Kth district, Sth stratum.
- $A_{oksi}$  - number of clusters selected in the ith block, Kth district, Sth stratum.

$$Y_{ksi}^1 = \frac{A_{ksi}}{A_{oksi}} \sum_{j=1}^{m_{ksi}} Y_{ksij} ; \text{ and}$$

$$P_{ksi} = \frac{M_{ksi}}{N_{ks}} \sum_{i=1}^{n_{ks}} M_{ksi}$$