Note on Estimation Procedure of NSS 61st Round

1. Introduction

1.1   The National Sample Survey (NSS), set up by the Government of India in 1950 to collect socio-economic data employing scientific sampling methods, started its sixty-first round from 1st July 2004. The survey will continue up to 30th June 2005.

2. Outline of Survey Programme

2.1 **Subject Coverage:** The 61st round (July 2004-June 2005) of NSS is earmarked for survey on 'Household Consumer Expenditure' and 'Employment and Unemployment'. The survey on 'household consumer expenditure' and 'employment and unemployment' is the seventh in the series of quinquennial surveys on the subjects, the last one being conducted in the 55th round (1999-2000) of NSS.

2.2 **Geographical coverage:** The survey will cover the whole of the Indian Union *except* (i) Leh (Ladakh) and Kargil districts of Jammu & Kashmir, (ii) interior villages of Nagaland situated beyond five kilometres of the bus route and (iii) villages in Andaman and Nicobar Islands which remain inaccessible throughout the year.

2.3 **Period of survey and work programme:** The period of survey will be of one year duration starting on 1st July 2004 and ending on 30th June 2005. The survey period of this round are divided into four sub-rounds of three months duration each as follows:

> sub-round 1 :   July - September 2004
> sub-round 2 :   October - December 2004
> sub-round 3 :   January - March 2005
> sub-round 4 :   April - June 2005

In each of these four sub-rounds equal number of sample villages/blocks (FSUs) have been allotted for survey with a view to ensuring uniform spread of sample FSUs over the entire survey period. Each of the FSUs is surveyed during the sub-round to which it has been allotted. *Because of the arduous field conditions, this restriction need not be strictly enforced in Andaman and Nicobar Islands, Lakshadweep, rural areas of Arunachal Pradesh and Nagaland.*

2.4 **Schedules of enquiry:** During this round, the following schedules of enquiry are being canvassed:

> Schedule 0.0   : list of households
> Schedule 1.0   : consumer expenditure
> Schedule 10   : employment and unemployment

2.5 **Participation of States:** In this round all the States and Union Territories except Andaman & Nicobar Islands, Dadra & Nagar Haveli and Lakshadweep are

participating at least on an equal matching basis. The following is the matching pattern of the participating States/UTs.

Nagaland (U)	: triple
J & K , Manipur & Delhi	: double
Goa, Maharashtra (U)	: one and half
Remaining States/UTs	: equal

3. Sample Design

3.1 **Outline of sample design:** A stratified multi-stage design has been adopted for the 61st round survey. The first stage units (FSU) are the 2001 census villages in the rural sector and Urban Frame Survey (UFS) blocks in the urban sector. The ultimate stage units (USU) are households in both the sectors. In the case of large villages/blocks requiring hamlet-group (hg)/sub-block (sb) formation, one intermediate stage is the selection of two hgs/sbs from each FSU.

3.2 **Sampling Frame for First Stage Units:** *For the rural sector,* the list of 2001 census villages (panchayat wards for Kerala) constitutes the sampling frame. *For the urban sector*, the list of latest available Urban Frame Survey (UFS) blocks has been considered as the sampling frame.

3.3 **Stratification:** Within each district of a State/UT, two basic strata have been formed: i) rural stratum comprising of all rural areas of the district and (ii) urban stratum comprising of all the urban areas of the district. However, if there are one or more towns with population 10 lakhs or more as per population census 2001 in a district, each of them will also form a separate basic stratum and the remaining urban areas of the district will be considered as another basic stratum. There are 27 towns with population 10 lakhs or more at all-India level as per census 2001.

3.4 **Sub-stratification**:

3.4.1 **Rural sector**: If 'r' be the sample size allocated for a rural stratum, the number of sub-strata formed is 'r/2'. The villages within a district as per frame have been first arranged in ascending order of population. Then sub-strata 1 to 'r/2' have been demarcated in such a way that each sub-stratum comprises a group of villages of the arranged frame and has more or less equal population.

3.4.2 **Urban sector**: If 'u' be the sample size for a urban stratum, 'u/2' number of sub-strata have been formed. The towns within a district, except those with population 10 lakhs or more, have been first arranged in ascending order of population. Next, UFS blocks of each town have been arranged by IV unit no. × block no. in ascending order. From this arranged frame of UFS blocks of all the towns, 'u/2' number of sub-strata has been formed in such a way that each sub-stratum has more or less equal number of UFS blocks.

For towns with population 10 lakhs or more, the urban blocks have been first arranged by IV unit no. × block no. in ascending order. Then 'u/2' number of sub-

strata has been formed in such a way that each sub-stratum has more or less equal number of blocks.

3.5 **Total sample size (FSUs):** 12784 FSUs have been allocated at all-India level on the basis of investigator strength in different States/UTs for central sample and 14992 for state sample.

3.6 **Allocation of total sample to States and UTs:** The total number of sample FSUs is allocated to the States and UTs in proportion to population as per census 2001 subject to the availability of investigators ensuring more or less uniform work-load.

3.7 **Allocation of State/UT level sample to rural and urban sectors:** State/UT level sample size is allocated between two sectors in proportion to population as per *census 2001* with 1.5 weightage to urban sector subject to the restriction that urban sample size for bigger states like Maharashtra, Tamil Nadu etc. should not exceed the rural sample size. A minimum of 8 FSUs has been allocated to each state/UT separately for rural and urban areas.

3.8 **Allocation to strata:** Within each sector of a State/UT, the respective sample size is allocated to the different strata in proportion to the stratum population as per census 2001. Allocations at stratum level have been adjusted to a multiple of 4 with a minimum sample size of 4.

3.9 **Selection of FSUs:** Two FSUs have been selected from each sub-stratum of a district of rural sector with Probability Proportional to Size With Replacement (PPSWR), size being the population as per Population Census 2001. For urban sector, two FSUs have been selected from each sub-stratum by using Simple Random Sampling Without Replacement (SRSWOR). Within each sub-stratum, samples have been drawn in the form of two independent sub-samples in both the rural and urban sectors.

3.10 **Selection of hamlet-groups/sub-blocks/households - important steps**

3.10.1 **Criterion for hamlet-group/sub-block formation:** Large villages/blocks having approximate present population of 1200 or more will be divided into a suitable number (say, D) of 'hamlet-groups' in the rural sector and 'sub-blocks' in the urban sector as stated below.

approximate present population of the sample village/block	no. of hgs/sbs to be formed (D)
less than 1200 (no hamlet-groups/sub-blocks)	1
1200 to 1799	3
1800 to 2399	4
2400 to 2999	5
3000 to 3599	6
…………..and so on	

For rural areas of Himachal Pradesh, Sikkim and Poonch, Rajouri, Udhampur, Doda districts of Jammu and Kashmir and Idukki district of Kerala, the number of hamlet-groups formed is as follows.

approximate present population of the sample village		no. of hgs to be formed
less than 600	(no hamlet-groups)	1
600 to 899		3
900 to 1199		4
1200 to 1499		5
………..and so on		

Two hamlet-groups/sub-blocks are selected from a large village/UFS block wherever hamlet-groups/sub-blocks have been formed, by SRSWOR. Listing and selection of the households are done independently in the two selected hamlet-groups/sub-blocks. In case hamlet-groups/sub-blocks are to be formed in the sample FSU, the same would be done by more or less equalizing population.

4. **Formation of Second Stage Strata and allocation of households**

For both Schedule 1.0 and Schedule 10, households listed in the selected village/block/ hamlet-groups/sub-blocks are stratified into three second stage strata (SSS) as given below.

4.1 **Rural**: The three second-stage-strata (SSS) in the rural sector are formed in the following order:

SSS 1:   relatively affluent households

SSS 2:   from the remaining households, households having principal earning from non- agricultural activity

SSS 3:   other households

4.2 **Urban**: In the urban sector, the three second-stage strata (SSS) are formed as under:

Two cut-off points, say 'A' and 'B', based on MPCE of NSS 55th round, have been determined at **NSS Region level** in such a way that top 10% of households have MPCE more than 'A' and bottom 30% have MPCE less than 'B'. Then three second-stage-strata (SSS) are formed in the urban sector in the following order:

SSS 1:   households with MPCE more than A   (i.e. MPCE $> A$)

SSS 2:   households with MPCE equal to or less than A but equal to or more than B   (i.e. $B \leq MPCE \leq A$)

SSS 3:   households with MPCE less than B   (i.e. $MPCE < B$)

The number of households to be surveyed in each FSU is 10 for each of the schedules 1.0 and 10. Composition of SSS with number of households to be surveyed for both schedule 1.0 and schedule 10 are as follows:

SSS	composition of SSS	no. of hhs to be surveyed	
		without hg/sb formation	with hg/sb formation (for each hg/sb)
rural			
SSS 1:	relatively affluent households	2	1
SSS 2:	of the rest, households having principal earning from non-agricultural activity	4	2
SSS 3:	other households	4	2

SSS	composition of SSS	without hg/sb formation	with hg/sb formation (for each hg/sb)
urban			
SSS 1:	households with MPCE > A	2	1
SSS 2:	other households with MPCE equal to or less than A but equal to or more than B (i.e. $B \leq MPCE \leq A$)	4	2
SSS 3:	households with MPCE less than B	4	2

5. **Selection of households for Schedules 1.0 and 10:** From each SSS the sample households for both the schedules are selected by SRSWOR. If a household is selected both for schedule 1.0 and schedule 10, only schedule 1.0 would be canvassed in that household and the sample household for schedule 10 would be replaced by next household in the frame for schedule 10.

6. Estimation Procedure

6.1 Notations:

s = subscript for s-th stratum

t = subscript for t-th sub-stratum

m = subscript for sub-sample (m =1, 2)

i = subscript for i-th FSU [village (panchayat ward) / block]

d = subscript for a hamlet-group/sub-block (d = 1, 2)

j = subscript for j-th second stage stratum in an FSU/ hg/sb (j = 1, 2 or 3)

k = subscript for k-th sample household under a particular second stage stratum within an FSU/ hg/sb

D = total number of hg's/sb's formed in the sample village (panchayat ward) / block

D* = 1 if D = 1

= D / 2 for FSUs with D > 1

N = total number of FSUs in any urban sub-stratum

Z = total size of a rural sub-stratum (= sum of sizes for all the FSUs of a rural sub-stratum)

z = size of sample village used for selection.

n = number of sample village / block surveyed including zero cases but excluding casualty for a particular sub-sample and sub-stratum.

H = total number of households listed in a second-stage stratum of a village/block/hamlet-group/sub-block of sample FSU

h = number of households surveyed in a second-stage stratum of a village/block/hamlet-group/sub-block of sample FSU

x, y = observed value of characteristics *x*, *y* under estimation

$\hat{X}$, $\hat{Y}$ = estimate of population total X, Y for the characteristics *x*, *y*

Under the above symbols,

$y_{stmidjk}$ = observed value of the characteristic y for the k-th household in the j-th second stage stratum of the d-th hg/sb (d = 1, 2) of the i-th FSU belonging to the m-th sub-sample for the t-th sub-stratum of s-th stratum;

However, for ease of understanding, a few symbols have been suppressed in following paragraphs where they are obvious.

6.2 Formulae for Estimation of Aggregates for a particular sub-sample and stratum in Rural / Urban sector:

6.2.1 Schedule 0.0:

6.2.1.1 Rural:

Estimation formula for a sub-stratum:

(i)   For estimating the number of households possessing a characteristic:

$$\hat{Y} = \frac{Z}{n} \sum_{i=1}^{n} \frac{1}{z_i} D_i^* \left[y_{i1} + y_{i2} \right]$$

where y_{i1} , y_{i2} are the total number of households possessing the characteristic y in hg's 1 & 2 of the i-th FSU respectively.

ii) For estimating the number of villages possessing a characteristic:

$$\hat{Y} = \frac{Z}{n} \sum_{i=1}^{n} \frac{1}{z_i} y_i$$

where y_i is taken as 1 for sample villages possessing the characteristic and 0 otherwise.

6.2.1.2 Urban:

Estimation formula for a sub-stratum:

(i) For estimating the number of households possessing a characteristic:

$$\hat{Y} = \frac{N}{n} \sum_{i=1}^{n} D_i^* \left[y_{i1} + y_{i2} \right] \ ,$$

where y_{i1} and y_{i2} are the totals of observed values for the characteristic y belonging to sub-blocks 1 and 2 respectively, of the i-th FSU.

6.2.2 Schedules 1.0 / 10:

6.2.2.1 Rural:

Estimation formula for a sub-stratum:

(i) For households selected in j-th second stage stratum:

$$\hat{Y}_j = \frac{Z}{n_j} \sum_{i=1}^{n_j} \frac{1}{z_i} D_i^* \left[\frac{H_{i1j}}{h_{i1j}} \sum_{k=1}^{h_{i1j}} y_{i1jk} + \frac{H_{i2j}}{h_{i2j}} \sum_{k=1}^{h_{i2j}} y_{i2jk} \right]$$

(ii) For all selected households:

$$\hat{Y} = \sum_j \hat{Y}_j$$

6.2.2.2 Urban:

Estimation formula for a sub-stratum:

(i) For households selected in j-th second stage stratum:

$$\hat{Y}_j = \frac{N}{nj} \sum_{i=1}^{nj} D_i^* \left[\frac{H_{i1j}}{h_{i1j}} \sum_{k=1}^{h_{i1j}} y_{i1jk} + \frac{H_{i2j}}{h_{i2j}} \sum_{k=1}^{h_{i2j}} y_{i2jk} \right]$$

(ii) For all selected households:

$$\hat{Y} = \sum_j \hat{Y}_j$$

6.2.3 Estimate for a stratum:

$$\hat{Y}s = \sum_t \hat{Y}st$$

6.3 Overall Estimate for Aggregates:

Overall estimate for aggregates for a stratum ($\hat{Y}_s$) based on two sub-samples is obtained as:

$$\hat{Y}_s = \frac{1}{2} \sum_{m=1}^{2} \hat{Y}_{sm}$$

6.4 Overall Estimate of Aggregates at State/UT/all-India level:

The overall estimate $\hat{Y}$ at the State/ UT/ all-India level is obtained by summing the stratum estimates $\hat{Y}_s$ over all strata belonging to the State/ UT/ all-India.

6.5 Estimates of Ratios:

Let $\hat{Y}$ and $\hat{X}$ be the overall estimate of the aggregates Y and X for two characteristics y and x respectively at the State/ UT/ all-India level.

Then the combined ratio estimate ($\hat{R}$) of the ratio ($R = \frac{Y}{X}$) will be obtained

as $\qquad \hat{R} = \frac{\hat{Y}}{\hat{X}}$.

6.6 Estimates of Error: The estimated variances of the above estimates will be as follows:

6.6.1 For aggregate $\hat{Y}$:

$$V\hat{a}r(\hat{Y}) = \sum_s V\hat{a}r(\hat{Y}s)$$

where $V\hat{a}r(\hat{Y}s)$ are as given below.

6.6.1.1 For strata with PPSWR selection at first stage:

$$Var_{ppswr}(\hat{Y}_s) = \left[\sum_t \frac{1}{n_{st}(n_{st}-1)} \sum_{i=1}^{n_{st}} (\frac{Z_{st}\hat{Y}_{sti}}{z_{sti}} - \hat{Y}_{st})^2 \right] ,$$

where $$\hat{Y}_{sti} = \sum_j Y_{stij} ,$$

$$\hat{Y}_{stij} = D_{sti}^* \left[\frac{H_{i1j}}{h_{i1j}} \sum_{k=1}^{h_{i1j}} y_{i1jk} + \frac{H_{i2j}}{h_{i2j}} \sum_{k=1}^{h_{i2j}} y_{i2jk} \right]$$

6.6.1.2 For strata with SRSWOR selection at first stage:

$$Var_{srswor}(\hat{Y}_s) = \sum_t \frac{1}{4} (\hat{Y}_{st1} - \hat{Y}_{st2})^2 ,$$

where $\hat{Y}_{st1}$ and $\hat{Y}_{st2}$ are the estimates for sub-sample 1 and sub-sample 2 respectively for stratum 's' and sub-stratum 't'.

6.6.2 **For ratio $\hat{R}$:**

$$M\hat{S}E(\hat{R}) = \frac{1}{(\hat{X})^2} \left[\sum_s M\hat{S}E_s(\hat{R}) + \sum_{s'} M\hat{S}E_{s'}(\hat{R}) \right]$$

where s, s' indicate respectively the strata with PPSWR and SRSWOR selection at first stage.

6.6.2.1 For strata with PPSWR selection at first stage:

$$M\hat{S}E_s(\hat{R}) = \sum_t \frac{1}{n_{st}(n_{st}-1)} \sum_{i=1}^{n_{st}} \left[\frac{Z_{st}}{z_{sti}} (\hat{Y}_{sti} - \hat{R}\hat{X}_{sti}) - (\hat{Y}_{st} - \hat{R}\hat{X}_{st}) \right]^2$$

where

$$\hat{Y}_{sti} = \sum_j \hat{Y}_{stij} , \quad \hat{X}_{sti} = \sum_j \hat{X}_{stij} ,$$

$$\hat{Y}_{stij} = D_{sti}^* \left[\frac{H_{i1j}}{h_{i1j}} \sum_{k=1}^{h_{si1j}} y_{i1jk} + \frac{H_{i2j}}{h_{i2j}} \sum_{k=1}^{h_{si2j}} y_{i2jk} \right] ,$$

$$\hat{X}_{stij} = D_{sti}^* \left[\frac{H_{i1j}}{h_{i1j}} \sum_{k=1}^{h_{si1j}} x_{i1jk} + \frac{H_{i2j}}{h_{i2j}} \sum_{k=1}^{h_{si2j}} x_{i2jk} \right]$$

6.6.2.2 For strata with SRSWOR selection at first stage:

$$M\hat{S}E_{s'}(\hat{R}) = \sum_t \frac{1}{4}\left[\left(\hat{Y}_{s't1} - \hat{Y}_{s't2}\right)^2 + \hat{R}^2\left(\hat{X}_{s't1} - \hat{X}_{s't2}\right)^2 - 2\hat{R}\left(\hat{Y}_{s't1} - \hat{Y}_{s't2}\right)\left(\hat{X}_{s't1} - \hat{X}_{s't2}\right)\right]$$

where $\hat{Y}_{s't1}$ and $\hat{Y}_{s't2}$ are the estimates for sub-sample 1 and sub-sample 2 respectively for stratum 's'' and sub-stratum 't'.

6.6.3 Estimates of RSE:

$$R\hat{S}E(\hat{Y}) = \frac{\sqrt{V\hat{a}r(\hat{Y})}}{\hat{Y}} \times 100$$

$$R\hat{S}E(\hat{R}) = \frac{\sqrt{M\hat{S}E(\hat{R})}}{\hat{R}} \times 100$$

6. Multipliers:

The formulae for multipliers for a sub-sample and schedule type are given below:

sch type	sub-stratum	formula for multipliers	
		hg / sb 1	hg / sb 2
0.0	rural	$\dfrac{Z_{st}}{n_{stm}} \times \dfrac{1}{z_{stmi}} \times D^*_{stmi}$	$\dfrac{Z_{st}}{n_{stm}} \times \dfrac{1}{z_{stmi}} \times D^*_{stmi}$
	urban	$\dfrac{N_{st}}{n_{stm}} D^*_{stmi}$	$\dfrac{N_{st}}{n_{stm}} D^*_{stmi}$
1.0 / 10	rural	$\dfrac{Z_{st}}{n_{stmj}} \times \dfrac{1}{z_{stmi}} \times D^*_{stmi} \times \dfrac{H_{stmi1j}}{h_{stmi1j}}$ j = 1, 2, 3	$\dfrac{Z_{st}}{n_{stmj}} \times \dfrac{1}{z_{stmi}} \times D^*_{stmi} \times \dfrac{H_{stmi2j}}{h_{stmi2j}}$ j = 1, 2, 3
	urban	$\dfrac{N_{st}}{n_{stmj}} \times D^*_{stmi} \times \dfrac{H_{stmi1j}}{h_{stmi1j}}$, j = 1, 2, 3	$\dfrac{N_{st}}{n_{stmj}} \times D^*_{stmi} \times \dfrac{H_{stmi2j}}{h_{stmi2j}}$, j = 1, 2, 3

Note: (i) For estimating any characteristic for any domain not specifically considered in sample design, indicator variable may be used.

(ii) Multipliers have to be computed on the basis of information available in the listing schedule irrespective of any misclassification observed between the listing schedule and detailed enquiry schedule.

(iii) For estimating number of villages possessing a characteristics, $D^*_{stmi} = 1$ in the relevant multipliers and there will be only one multiplier for the village.

7. Treatment for zero cases, casualty cases etc.:

7.1 While counting the number of FSUs surveyed (n_{stm}) in a sub-stratum, all the FSUs with survey codes 1 to 6 in schedule 0.0 will be considered. In addition, if no SSU is available in the frame for a particular schedule then also that FSU will be treated as

surveyed in respect of that schedule. However, if the SSUs of a particular schedule type are available in the frame of the FSU but none of these could be surveyed then that FSU has to be treated as casualty and it will not be treated as surveyed in respect of that schedule.

7.2 *Casualty cases*: FSUs with survey code 7 as per schedule 0.0 are treated as casualties. In addition to this, an FSU, although surveyed, may have to be treated as casualty for a particular schedule type and a particular *second stage stratum* as given in the following para:

7.2.1 FSUs with survey codes 1 and 4 as per schedule 0.0 having number of households in the frame of j-th second stage stratum greater than 0 but number of households surveyed according to data file, considering both hg/sb together, as nil (i.e. $H_{i1j} + H_{i2j} > 0$ but $h_{i1j} + h_{i2j} = 0$) will be taken as casualties for j-th second stage stratum.

All the FSUs with survey codes 1 to 6 as per schedule 0.0 minus the number of casualties as identified above will be taken as the number of surveyed FSUs (n_{stmj}) for that sub-stratum × second stage stratum.

When casualty for j-th second stage stratum occurs for a particular hg/sb but not for the other hg/sb, the FSU will not be treated as casualty but some adjustments in the value of H for the other hg/sb will be done as follows:

(i) Suppose for hg/sb 1, $H_{i1j} > 0$ but $h_{i1j} = 0$ while for hg/sb 2, $H_{i2j} > 0$ and $h_{i2j} > 0$. In that case $D_i^* \times H_{i2j}$ will be replaced by $D_i^* \times (H_{i1j} + H_{i2j})$ in the formula for multiplier of hg/sb 2.

(ii) Suppose for hg/sb 1, $H_{i1j} > 0$ and $h_{i1j} > 0$ while for hg/sb 2, $H_{i2j} > 0$ but $h_{i2j} = 0$. In that case $D_i^* \times H_{i1j}$ will be replaced by $D_i^* \times (H_{i1j} + H_{i2j})$ in the formula for multiplier of hg/sb 1.

It may be noted that n_{stmj} would be same for hg/sb 1 & 2 of an FSU.

8. Treatment in cases of void second-stage strata/sub-strata /strata/NSS region at FSU or household level

8.1   A sub-stratum may be void because of the casualty of all the FSUs belonging to the sub-stratum. This may occur in one sub-sample or in both the sub-samples. If it relates to only one sub-sample, then estimate for the void sub-stratum may be replaced with the estimate as obtained from the other sub-sample for the same sub-stratum.

8.2   When a sub-stratum is void in both the sub-samples, the following procedure is recommended:

Case(I): Sub-stratum void cases at FSU levels (i.e. all FSUs having survey code 7):

i) If a rural sub-stratum is void then it may be merged with a sub-stratum having the next higher population size class of villages within the same

district. Sub-stratum 1 may be merged with sub-stratum 2, sub-stratum 2 with sub-stratum 3 and so on. If last sub-stratum is void, it will be merged with the previous sub-stratum.

(ii) If an urban sub-stratum is void then it may be merged with the sub-stratum with next higher number within the same district/stratum i.e. Sub-stratum 1 may be merged with sub-stratum 2, sub-stratum 2 with sub-stratum 3 and so on. If last sub-stratum is void, it will be merged with the previous sub-stratum.

iii) If all the sub-strata in a district are void, it may be excluded from the coverage of the survey. The state level estimates will be based on the estimates of districts for which estimates are available and remarks to that effect may be added in appropriate places.

Case (II): Stratum void case at second stage stratum level (i.e. all the FSUs are casualties for a particular second stage stratum):

An FSU may be a casualty for a particular *second stage stratum* although survey code is not 7. If all the FSUs of a sub-stratum become casualties in this manner for a particular *second stage stratum*, the sub-stratum will become void. In such cases, sub-strata will be merged with other sub-strata for all the second stage strata as in *Case (I) above*.

However, if whole district/stratum becomes void in this manner for a particular second stage stratum, adjustment for this type of stratum void case may be done according to the following guidelines.

The adjustment will be made involving other strata (within NSS region) of the State/U.T.   Suppose A, B, C and D are the four strata in the State/UT/Region and stratum C is void for j-th *second stage stratum*. If $\hat{Y}_{aj}$, $\hat{Y}_{bj}$ and $\hat{Y}_{dj}$ are the aggregate estimates for the strata A, B and D respectively, then the estimate $\hat{Y}_{cj}$ for stratum C may be obtained as $\left(\dfrac{\hat{Y}_{aj}+\hat{Y}_{bj}+\hat{Y}_{dj}}{Z_a+Z_b+Z_d} \times Z_c \right)$ where Z_a, Z_b, Z_c and Z_d are the sizes of strata A, B, C and D respectively.

9. **Reference to the values of Z_{st}, N_{st}, n_{st}, z_{sti}, D_{sti}, D^*_{sti}, H_{sti1j}, h_{sti1j}, H_{sti2j}, h_{sti2j}:**
   (a)   Values of Z_{st}, N_{st} and allotted n_{st} for the whole round are given in appendix Table 2 for rural sector and urban sectors.
   (b) n_{st} should not be taken from the tables. The values of n_{stm} for each sub-sample are to be obtained following the guidelines given in para 7 above. It includes uninhibited and zero cases but excludes casualty cases.
   (c)   The value of z_{sti} is to be taken from the column of sample list under the heading "frame population". Value of D_{sti} are to be taken from item 16 of block 1, sch 0.0. D_{sti}* is to be calculated from the value of D_{si}.

(d)   Values of H_{sti1j}, H_{sti2j} are to be taken from col.(5), block 6 of sch 0.0 for respective hg/sb.

(e)   The value of h_{sti1j} and h_{sti2j} should not be taken from col (9), block 6 of sch.0.0. The figures should be obtained by counting the number of households in the data file excluding the casualty households.

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