52nd Round

52.1 Introduction

52.1.1 The National Sample Survey (NSS), set up by the Government of India in 1950 to co[llect] socio-economic data employing scientific sampling methods. completed its fifty-first round [of] operations in June 1995. The survey period of the fifty-second round was from July 199[5 to] June 1996.

52.2 General particulars of the survey

52.2.1 **Subject coverage:** The 52nd round of NSS was primarily focused on health care [and] education including problems of the aged persons (60 years and above).The survey on consu[mer] expenditure and employment-unemployment was also carried out based on thin samples a[s in] the usual annual rounds. This apart, information on availability of some infra-structural facil[ities] to the villages, relevant in the context of social consumption, was collected through a sep[arate] block in the listing schedule itself.

52.2.2 **Schedules of enquiry:** The whole gamut of information collected through the survey on social consumption and aged persons was moduled into two schedules of enquiry viz., schedule 25.0 covering maternity, child care, medical services and problems of aged persons and schedule 25.2 covering education. Table (1.1) gives the list of schedules of enquiry for the 52nd round.

Table (1.1) : Schedules canvasse[d] NSS 52nd Round		
srl. no.	schedule no.	description
(1)	(2)	(3)
1.	0.0	List of Households
2.	1.0	Household Consumer Expenditure
3.	25.0	Survey on Health Care
4.	25.2	Participation in Education

52.2.3 **Period of survey:** As mentioned earlier, the 52nd round survey was of one year's duration viz., from July 1995 to June 1996.

52.2.4 **Geographical coverage:** The survey covered the whole of Indian Union excepting (i) Ladakh and Kargil districts of Jammu & Kashmir, (ii) interior villages of Nagaland situated beyond 5 km of a bus route and (iii) villages of Andam[an &] Nicobar Islands which were inaccessible throughout the year.

52.2.5 **Work programme:** The survey period of one year of this round was divided into four sub-rounds of three months' duration each as indicated below:

sub-round	period of survey
1	July - September 199[5]
2	October - December [1995]
3	January - March 199[6]
4	April - June 1996

Equal numbers of sample villages and blocks were allotted for survey in each of these four sub-

rounds. Each village/block was generally surveyed during the sub-round period to which it was allotted. Because of arduous field conditions, this restriction could not be strictly enforced in Andaman & Nicobar Islands, Lakshadweep and rural areas of Arunachal Pradesh and Nagaland.

52.3 Sample design

52.3.1 As usual, a stratified two-stage design was adopted in this round. The first-stage units were census villages in the rural sector (panchayat wards in case of Kerala) and the NSSO urban frame survey(UFS) blocks in the urban sector. The second-stage units were households in both the sectors.

52.3.2 **Sampling frame for first stage units**: The lists of census villages of 1991 census (1981 census list for J & K) constituted the sampling frame for the rural sector. For Kerala, however, the list of panchayat wards were used as the sampling frame for selection of panchayat wards in the rural sector. For Nagaland, the villages located within 5 km of a bus route constituted the sampling frame whereas, for Andaman & Nicobar Islands, the list of 'accessible' villages constituted the sampling frame. For the urban sector, the lists of NSSO Urban Frame Survey(UFS) blocks were considered as the sampling frame.

52.3.3 Stratification

52.3.3.1 **Rural**: In the rural sector, each district was treated as a separate stratum. However, if the 1991 census population of the district was greater than or equal to 2 million (1.8 million population as per 1981 census for J & K), the district was split into two or more strata, by grouping contiguous tehsils to form strata. In Gujarat, in the case of districts extending over more than one NSS region, the part of a district falling within each NSS region formed a separate stratum.

52.3.3.2 **Urban**: In the urban sector, strata were formed, within each NSS region, by grouping towns on the basis of the population of towns. The urban strata were formed as follows:

stra-tum no.	population size class(as per 1991 census) of towns
(1)	(2)
1	all towns with population less than 50,000
2	all towns with 50,000 - 1,99,999
3	all towns with 2,00,000 - 9,99,999
4,5	each city with population 10,00,000 or above

Table (1.2): Composition of urban strata in an NSS region

Note : each city with population 10 lakhs or above formed a separate stratum

52.3.4 **Allocation of first-stage units (FSUs)**: It was decided to select a total sample of 13,000 FSUs(rural & urban combined) for the 'central sample' at all-India level. The total sample size of FSUs (rural & urban combined) for the central sample for a state/u.t. has been allocated to its rural and urban sectors considering the relative sizes of the rural and urban population with double weightage to the urban sector. State-level rural/urban allocations were adjusted to multiples of 8. Allocation of first-stage units by

state X sector is given in Table 52S. The state-level rural sample size was allocated to the rural strata in proportion to their rural population figures as per the census. Similarly, urban sample size of the state/u.t. was allocated to the urban strata in proportion to urban population figures as per the census. All the stratum-level allocations were adjusted to multiples of S as far as possible (otherwise multiples of 4). Allocations were made multiples of 8 to the extent possible in order to allocate them equally to each sub-sample X sub-round combination (2 sub-samples X 4 sub-rounds).

52.3.5 Selection of first-stage units: Sample FSUs in the rural sector were selected circular systematically with equal probability. In the u.t. of Daman & Diu, the district Diu consisted of only two villages which were selected for survey in both the central and state samples. Sample blocks in the urban sector were also selected circular systematically with equal probability. Sample FSUs of both the rural and the urban sectors were selected in the form of two independent sub-samples.

rural sample	
approx. present population of the FSU	value* of D
less than 1200	1
1200 - 1799	4
1800 - 2199	5
2200 - 2599	6
2600 - 2999	7
(and so on)	

urban sample	
approx. present population of the FSU	value of D
less than 1200	1
1200 - 1999	2
2000 - 2799	3
2800 - 3599	4
3600 - 4399	5
(and so on)	

* For rural areas of Himachal Pradesh, Sikkim and Punch, Rajouri, Udhampur and Doda districts of Jammu & Kashmir, the values of D were D=1 for population less than 600; D=4 for population 600 to 1199; D=5 for population 1200 to 1499 and so on. D=1 implied no hamlet-group / sub-block formation.

52.3.6 Arunachal Pradesh : For the rural sector of Arunachal Pradesh, the procedure of cluster sampling was followed. The nucleus villages were selected circular systematically with equal probability, in the form of two independent sub-samples. A cluster, generally of 4 to 6 villages, was formed around each nucleus village.

52.3.7 Selection of hamlet-groups/sub-block (for 'large' FSUs only): Large FSU (villages/blocks) were divided into a suitabl number of hamlet-groups/sub-blocks havir equal population content. Two hamlet-grou were selected from large villages in the ru sector, whereas only one sub-block was selec from large blocks of the urban sector. The t selected hamlet-groups in large FSUs of the n sector were considered together as one unit combined listing and selection of househ(The number of hamlet-groups/sub-bl formed (D) was as per the guidelines { alongside.

52.3.8 Selection of households (second units): From each selected FSU (or the s hamlet-groups/sub-block of the FSU for large FSUs), a sample of 4 households for schec

as selected for the detailed enquiry. For schedule 1.0, the households listed were arranged by eir means of livelihood and then the required number (i.e. 4) of sample households were lected circular systematically with a random start.

1.3.9 Number of sample villages and blocks allotted and surveyed along with number of mple households and persons are given in Table 52S.

1.4 Estimation Procedure

1.4.1 The following notations are used in the sequel:

s= subscript for s-th stratum
i= subscript for i-th sample village/block
j= subscript for j-th second-stage stratum of a sample village/block
k= subscript for k-th sample household
b= subscript for b-th sub-sample
N_s= total number of villages/blocks in the frame of s-th stratum
n_s = number of villages/blocks surveyed(including uninhabited and 'zero cases' but excluding casualty and other not-received cases) in the s-th stratum , for any particular schedule type.
D= total number of hamlet-groups/sub-blocks formed in the sample village/block
(D=1,4,5,6....... for rural sample and D=1,2,3,4........ for urban sample)
The notation D' used for the rural sector is described as :
$D' = D$ for D=1 and $D' = D/2$ if $D \geq 4$
H= total number of households listed in the FSU
h= number of households surveyed and used for tabulation
x, y= values of the characters x & y
$\hat{X} \ \hat{Y}$ = estimate of population totals of the characters x , y

1.4.2 **Estimates of aggregates**: The formula for obtaining $\hat{Y}_s$, the estimate of aggregate of any aracter y for the s-th stratum, are given below for schedule 1.0. These formulae may be used to tain sub-sample wise estimates first and then the pooled estimate may be obtained as the nple average of the sub-sample wise estimates.

ral:
$$\hat{Y}s = \frac{N_s}{n_s} \sum_{i=1}^{n_s} D'_{si} \frac{H_{si}}{h_{si}} \sum_{k=1}^{h_{si}} y_{sik} \quad ...(1)$$

ban:
$$\hat{Y}_s = \frac{N_s}{n_s} \sum_{i=1}^{n_s} D_{si} \frac{H_{si}}{h_{si}} \sum_{k=1}^{h_{si}} y_{sik} \quad ......(2)$$

1.4.3 **Sub-sample estimates**: Sub-sample estimates are computed on the basis of villages and cks surveyed in the concerned sub-sample. Thus n_s in the above formula would mean the

number of surveyed villages/blocks (available for tabulation including uninhabited and zero cases) in the concerned sub-sample of s-th stratum.

Table 52S: Number of villages/blocks allotted and surveyed and number of sample households and persons surveyed								
State/u.t:	number of				number of surveyed			
	villages		blocks		households		persons	
	allotted	surveyed	allotted	surveyed	rural	urban	rural	urban
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Andhra Pradesh	528	528	384	384	1999	1535	8736	6728
Assam	360	336	88	87	1324	348	6908	1519
Bihar	768	766	232	232	2700	924	14840	5011
Gujarat	256	256	264	264	1002	1047	5180	5244
Haryana	112	112	80	80	428	312	2367	1467
Karnataka	280	280	248	248	1034	990	5376	4668
Kerala	*288	288	208	208	1140	831	5404	3800
M.P.	552	552	328	328	2078	1308	10903	6694
Maharashtra	456	456	560	560	1729	2237	8555	10414
Orissa	352	352	112	112	1306	448	6419	1996
Punjab	232	232	200	200	899	796	4840	3564
Rajasthan	328	328	200	200	1261	797	6894	3969
Tamil Nadu	448	448	472	472	1700	1874	6731	7652
U.P.	968	968	480	480	3515	1918	19753	10302
West Bengal	480	480	368	368	1855	1460	9093	6285
North-eastern	816	735	392	392	2830	1422	13792	6225
North-western	536	421	384	265	1573	1039	8392	4650
Southern	128	128	112	112	461	448	2158	1952
all-India	7888	7666	5112	4992	28834	19734	146341	92140

*Figures denote number of panchayat wards.

52.4.4 Sub-sample estimates by schedule type for sch.1.0: There were two types of sch.1.0. Thus estimates could be generated by schedule type within the sub-sample. So ns in the formula for sch.1.0 would mean the number of surveyed villages/blocks (available for tabulation including uninhabited and zero cases) of the concerned schedule type in the concerned sub-sample of s-th stratum.

52.4.5 Combined estimate: The combined estimate based on the whole sample was computed as the simple average of the sub-sample estimates. Thus if $\hat{Y}_{s1}$ and $\hat{Y}_{s2}$ be the sub-sample estimates of s-th stratum total, the combined estimate was obtained as

$$\hat{Y}_s = \frac{1}{2} \sum_{b=1}^{2} \hat{Y}_{sb} \quad ....(3)$$

52.4.6 Estimate of aggregates at state/u.t./region level: Let $\hat{Y}_b$ be the estimate of aggregate at state/u.t./region level from b-th sub-sample and $\hat{Y}_c$ the combined estimate of aggregate at state/u.t./region level based on the whole sample, then

$$\hat{Y}_b = \sum_s \hat{Y}_{sb} \qquad \text{................................(4)}$$

and $\quad \hat{Y}_c = \frac{1}{2}(\sum_s \hat{Y}_{s1} + \sum_s \hat{Y}_{s2}) \text{......................(5)}$

52.4.7 Estimate of ratios: If X be the population total of the variable x for the state/u.t./region , its estimate $\hat{X}_b$ or $\hat{X}_c$ are obtained exactly in the same manner as above after replacing y by x.

Then the estimate of ratio $R = \dfrac{Y}{X}$ is obtained as

$\hat{R}_b = \dfrac{\hat{Y}_b}{\hat{X}_b}$, based on sub-sample b.

& $\hat{R}_c = \dfrac{\hat{Y}_c}{\hat{X}_c}$, based on the whole sample.

52.4.8 Formulae used for calculating RSEs:

$$V(\hat{R}) = \frac{1}{\hat{X}^2} \sum_s [V(\hat{Y}_s) + \hat{R}^2 V(\hat{X}_s) - 2\hat{R}Cov(\hat{Y}_s, \hat{X}_s)]$$

$$= \frac{\sum_s [(\hat{Y}_{s1} - \hat{Y}_{s2})^2 - 2\hat{R}(\hat{Y}_{s1} - \hat{Y}_{s2})(\hat{X}_{s1} - \hat{X}_{s2}) + \hat{R}^2 (\hat{X}_{s1} - \hat{X}_{s2})^2}{4\hat{X}^2}$$

where $\hat{Y}_{s1}$ and $\hat{Y}_{s2}$ are the estimates of the s-th stratum total obtained from sub-samples 1 and 2 respectively. Similarly, $\hat{x}_{s1}$ and $\hat{x}_{s2}$ are the estimates of X_s based on sub-samples 1 and 2 respectively.

Relative standard errors (RSEs) of $\hat{Y}$ and $\hat{R}$ are given by:

$$RSE(\hat{Y}) = \frac{\sqrt{V(\hat{Y})}}{\hat{Y}} \times 100$$

and

$$RSE(\hat{R}) = \frac{\sqrt{V(\hat{R})}}{\hat{R}} \times 100$$