

Data Validation: Computer Scrutiny programme and Howler Checks (Indian Experience)

Introduction:

In large scale data processing data validation is very essential part which is applied after the data entry for the schedules of an FSU is completed. This involves applying a set of rules for the consistency of the data as per the instruction of the survey. Validations checks are performed using computer programmes. The computer programmes incorporate these set of rules for the consistency. The instruction and the schedules change for different surveys, accordingly these validations checks and computer programmes are also revised. However, here we will discuss the validations process in the context of 68th round survey (schedule 0.0, schedule1.0(type-1 & type-2) and schedule10). During the data entry also validation checks are applied. But considering the speed of data entry, it is not desirable to include all validation checks online with data entry operation. Therefore, when data-entry and verification of one LOT (schedules of an FSU) has been completed, a separate 'batch validation' is to be exercised on the batch files.

Data Validation is performed through different phases of operations for which all application software are written inhouse. First we go for Content Check (Ph-I Validation) then Coverage Check (Ph-II Validation) and finally finding out abnormally high or low values (Ph-III Validation). All the phases of validations mentioned here are performed using computer software in DOS as well as UNIX environment. After running these programmes, doubtful (or apparently inconsistent) records are printed in the form of error list and checked thoroughly consulting the filled-in schedules.

The basic steps involved in validation process are -

- Conversion of DAT files (generated by shell program) into text data -: [The Visual Basic Data Entry packages generate data in Visual Basic formats. So for further processing which is written in C language it is required to convert Visual Basic data file to Text file (ASCII) format.]
- Sorting of text data with appropriate sorting keys -: [Schedule type wise text file data are required to sort with the appropriate keys with the help of tabsort program in Dos as well as Unix environments.]
- Running of validation programme & generating error list -: [The programs consisting the checking of scrutiny points of different schedules are run with the schedule type wise sorted text data which will generate error list for further validation.]
- Furnished output FSU by FSU.

PHASE-I VALIDATION : The output in the form of error list are generated following the above mentioned process. The error list is examined following the computer scrutiny programme (CSP).

The computer scrutiny programme (CSP) : CSP when applied to the data points out errors and inconsistencies that require manual inspection. The programme does not suggest correction procedures. Corrections made at the stage of computer scrutiny will necessarily involve the exercise of judgment based on instruction and ancillary knowledge. Simple mechanical correction procedures that do not require any judgment based on instruction are not included in this programme. However, they are included in the computer edit programme. However, corrections are attempted only if (1) it is obvious that there has been a mistake and (2) the scrutinizing official is reasonably sure as to what the correct figure is. The work of correction involves looking for obvious mistakes in the schedule, e.g. use of wrong unit in recording data, and looking for decimal point errors, column shifting, and other obvious errors in data entry. In all cases, the relevant filled-in schedules are referred to. If required, clarifications may be sought from the field offices. Apart from the scrutiny points given below, checking for all other errors which might occur as a part of the data processing, like duplicate records, presence of essential blocks and invalid item codes, are to be incorporated. The computer scrutiny programmes (CSP) for schedule 0.0, schedule1.0 and schedule10 are mentioned in following paragraphs which are illustrative.

NSS 68th Round

Computer Scrutiny Programme

Schedule 0.0 : Listing Schedule

Related records will be printed if the consistency checks fail. In such cases, relevant figures may be corrected/ confirmed by looking into all the related figures and the remarks/ comments in the Schedule. If required, reference may be made to field offices.

srl. no.	schedule reference			scrutiny point	Reference in the layout		Remarks
	block	line/item	column		Level	Byte position	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

srl. no.	schedule reference			scrutiny point	Reference in the layout		Remarks
	block	line/item	column		Level	Byte position	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	1	16	-	Entry should be consistent with item 15 for survey code 1 or 4 in item 17.	01	45-47 & 53	
2.	1	16	-	i) If hg/sb formed, Entry >2 and less than 100. ii) Otherwise, Entry = 1.	01	45-47	
3.	1	16	-	If entry = 1 and survey code in item 17 is 1 or 4, i) Segment 1 information in block 6 must be there. ii) Segment 2 information should not exist in Blk.6.	01 & 02, 03, 04	-	
4.	1	16	-	If entry ≥ 3 , then both the Segments 1 & 2 information should exist in Blk.6.	01 & 02, 03, 04	-	
5.	1	17	-	Entry = 1 – 7.	01	55	
6.	1	17	-	If item 17 = 1 or 4 , then Blk.6 should not go blank.	01 & 02, 03, 04	-	
7.	1	17	-	If item 17 = 2,3,5,6 or 7 then Blk.6 should not be filled-in.	01 & 02, 03, 04	-	
8.	1	18	-	Entry = 1 – 3 or 9, if item 17 is 4 – 7. = blank, otherwise.	01	56	

srl. no.	schedule reference			scrutiny point	Reference in the layout		Remarks
	block	line/item	column		Level	Byte position	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
9.	2	2	3,4	Entry = valid 6 digit date in the format of dd/mm/yy satisfying the following conditions: (i)yy = 11 or 12 (ii) 07 ≤ mm ≤ 12 if yy = 11 01 ≤ mm ≤ 06 if yy = 12 (iii) 01 ≤ dd ≤ 31 if mm = 01, 03, 05, 07, 08, 10, 12 01 ≤ dd ≤ 30 if mm = 04, 06, 09, 11 01 ≤ dd ≤ 29 if mm = 02 (iv) Col 4 ≥ col 3	01	56-62, 63-68	
10.	2	4	3	0 < Entry ≤ 30	01	69-71	
11.	2	5(i)	3	Entry = 1 or 2	01	72	
12.	2	5(i)	4	Entry = 1 or 2	01	73	
13.	2	5(ii)	3	Entry = 1 or 2	01	74	
14.	2	5(ii)	4	Entry = 1 or 2	01	75	
15.	6	Sch. 1.0 (type 1) hg/sb 1 & 2 for SSS 1	3	If Block 1, item 17 is 1 or 4, then Block 6, col.(3) > 0	01 & 02	55-59	
16.	6	Sch. 1.0 (type 1) hg/sb 1 & 2 for SSS 1	5	H ≤ 10 if entry in item 5 of block 1 is 1	02	60-62	

srl. no.	schedule reference			scrutiny point	Reference in the layout		Remarks
	block	line/item	column		Level	Byte position	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
17.	6	Sch. 1.0 (type 1) against row 'all' for each segment	5	Entry = sum of entries for all the 3 SSS for each of the hg/ sb 1 & 2	02	60-62	
18.	6	Sch. 1.0 (type 1) against row 'all' for each segment	3 & 5	i) Entry in col. 3 should be greater than entry in col. 5 against row 'all' ii) Entry in col. 3 ÷ entry in col. 5 against row 'all' ≤ 9	02	55-59 & 60-62	
19.	6	Sch. 1.0 (type 1) for each SSS	5, 6	col. 5 ≥ col. 6	02	60-62, 63-64	
20.	6	Sch. 1.0 (type 1) for each SSS	5,6	If Col 5 (H) > 0, then Col 6 (h) ≠ 0	02	60-62, 63-64	
21.	6	Sch. 1.0 (type 1) for each SSS	6	Entry in col. 6 ≤ 8	02	63-64	
22.	6	Sch. 1.0 (type 1) for each SSS	7 – 9	col. 9 = col. 7 + col. 8	02	65-66, 67-68, 69-70	
23.	6	Sch. 1.0 (type 1) for each SSS	6, 9,10	col. 10 = col. 6 – col. 9	02	63-64, 69-70, 71-72	
24.	6	Sch. 1.0 (Type-1) for Row 'all'	6	Entry =sum of entries over all the 3 SSS	02	63-64	

srl. no.	schedule reference			scrutiny point	Reference in the layout		Remarks
	block	line/item	column		Level	Byte position	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
25.	6	Sch. 1.0 (Type-1) for Row 'all'	7	Entry =sum of entries over all the 3 SSS	02	65-66	
26.	6	Sch. 1.0 (Type-1) for Row 'all'	8	Entry =sum of entries over all the 3 SSS	02	67-68	
27.	6	Sch. 1.0 (Type-1) for Row 'all'	9	Entry =sum of entries over all the 3 SSS	02	69-70	
28.	6	Sch. 1.0 (Type-1) for Row 'all'	10	Entry =sum of entries over all the 3 SSS	02	71-72	
29.	6	Sch. 1.0 (type 2) hg/sb 1 & 2 for SSS 1	3	If Block 1, item 17 is 1 or 4, then Block 6, col.(3) > 0	01 & 03	55-59	
30.	6	Sch. 1.0 (type 2) hg/sb 1 & 2 for SSS 1	5	H <= 10 if entry in item 5 of block 1 is 1	03	60-62	
31.	6	Sch. 1.0 (type 2) against row 'all' for each segment	5	Entry = sum of entries for all the 3 SSS for each of the hg/ sb 1 & 2.	03	60-62	

srl. no.	schedule reference			scrutiny point	Reference in the layout		Remarks
	block	line/item	column		Level	Byte position	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
32.	6	Sch. 1.0 (type 2) against row 'all' for each segment	3 & 5	i) Entry in col. 3 should be greater than entry in col. 5 against row 'all' ii) Entry in col. 3 ÷ entry in col. 5 against row 'all' ≤ 9	03	55-59 & 60-62	
33.	6	Sch. 1.0 (type 2) for each SSS	5, 6	col. 5 ≥ col. 6	03	60-62, 63-64	
34.	6	Sch. 1.0 (type 2) for each SSS	5,6	If Col 5 (H) > 0, then Col 6 (h) ≠ 0	03	60-62, 63-64	
35.	6	Sch. 1.0 (type 2) for each SSS	6	Entry in col. 6 ≤ 8	03	63-64	
36.	6	Sch. 1.0 (type 2) for each SSS	7 – 9	col. 9 = col. 7 + col. 8	03	65-66, 67-68, 69-70	
37.	6	Sch. 1.0 (type 2) for each SSS	6, 9,10	col. 10 = col. 6 – col. 9	03	63-64, 69-70, 71-72	
38.	6	Sch. 1.0 (Type-2) for Row 'all'	6	Entry =sum of entries over all the 3 SSS	03	63-64	
39.	6	Sch. 1.0 (Type-2) for Row 'all'	7	Entry =sum of entries over all the 3 SSS	03	65-66	

srl. no.	schedule reference			scrutiny point	Reference in the layout		Remarks
	block	line/item	column		Level	Byte position	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
40.	6	Sch. 1.0 (Type-2) for Row 'all'	8	Entry =sum of entries over all the 3 SSS	03	67-68	
41.	6	Sch. 1.0 (Type-2) for Row 'all'	9	Entry =sum of entries over all the 3 SSS	03	69-70	
42.	6	Sch. 1.0 (Type-2) for Row 'all'	10	Entry =sum of entries over all the 3 SSS	03	71-72	
43.	6	Sch. 1.0 (type 2) against row 'all'	11	Entry = sum of entries for all the SSS for each of the hg/ sb	03	73-74	
44.	6	Sch. 1.0 (type 2)	6,11	For each row, col.(11) ≤ col.(6)	03	63-64, 73- 74	
45.	6	Sch. 10 hg/sb 1 & 2 for SSS 1	3	If Block 1, item 17 is 1 or 4, then Block 6, col.(3) > 0	01 & 04	55-59	
46.	6	Sch. 10 hg/sb 1 & 2 for SSS 1	5	H ≤ 10 if entry in item 5 of block 1 is 1	04	60-62	
47.	6	Sch. 10 against row 'all' for each segment	5	Entry = sum of entries for all the 3 SSS for each of the hg/ sb 1 & 2	04	60-62	

srl. no.	schedule reference			scrutiny point	Reference in the layout		Remarks
	block	line/item	column		Level	Byte position	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
48.	6	Sch. 10 against row 'all' for each segment	3 & 5	i) Entry in col. 3 should be greater than entry in col. 5 against row 'all' ii) Entry in col. 3 ÷ entry in col. 5 against row 'all' ≤ 9	04	55-59 & 60-62	
49.	6	Sch. 10 for each SSS	5, 6	col. 5 ≥ col. 6	04	60-62, 63-64	
50.	6	Sch. 10 for each SSS	5,6	If Col 5 (H) > 0, then Col 6 (h) ≠ 0	04	60-62, 63-64	
51.	6	Sch. 10 for each SSS	6	Entry in col. 6 ≤ 8	04	63-64	
52.	6	Sch. 10 for each SSS	7 – 9	col. 9 = col. 7 + col. 8	04	65-66, 67-68, 69-70	
53.	6	Sch. 10 for each SSS	6, 9,10	col. 10 = col. 6 – col. 9	04	63-64, 69-70, 71-72	
54.	6	Sch. 10 for Row 'all'	6	Entry =sum of entries over all the 3 SSS	04	63-64	
55.	6	Sch. 10 for Row 'all'	7	Entry =sum of entries over all the 3 SSS	04	65-66	
56.	6	Sch. 10 for Row 'all'	8	Entry =sum of entries over all the 3 SSS	04	67-68	

srl. no.	schedule reference			scrutiny point	Reference in the layout		Remarks
	block	line/item	column		Level	Byte position	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
57.	6	Sch. 10 for Row 'all'	9	Entry =sum of entries over all the 3 SSS	04	69-70	
58.	6	Sch. 10 for Row 'all'	10	Entry =sum of entries over all the 3 SSS	04	71-72	
59.	6	Sch. 10 against row 'all'	11	Entry = sum of entries for all the SSS for each of the hg/ sb	04	73-74	
60.	6	Sch. 10	6,11	For each row, col.(11) ≤ col.(6).	04	63-64, 73-74	
61.	7	All	3	There are positive entries for sector = 1 and entry in item17, block 1 = 1, 4.	05	-	
62.	7	1 – 23, 24(b)	3	Entry = 1 – 3	05	55-77, 80	
63.	7	24(a)	3	Entry = 01 – 08 or 10 or 11 or 19.	05	78-79	
64.	7	25	3	Entry = 1 – 5	05	81	
65.	7	26	3	Entry = 1 – 4	05	82	
66.	7	27	3	Entry = 1 or 2	05	83	
67.	7	28	3	Entry = 1 – 6 or 9	05	84	

Schedule 10: Employment and Unemployment

Computer Scrutiny Programme

Related records will be printed if the consistency checks fail. In such cases, relevant figures may be corrected/ confirmed by looking into all the related figures and the remarks/ comments in the schedule. If required, reference may be made to field offices. If serial number and age of a household member, reported in a block undergoes any correction, such correction needs to be incorporated in all the blocks where the household member has been reported.

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	1	13	-	entry = 1 or 2	01	32
2.	1	14	-	entry = 1, 2 or 3	01	33
3.	1	15	-	Entry = any of 01 to 08	01	34- 35
4.	1	16	-	entry = 99 or any one of 01 to the last serial number of col. 1 of block 4	01	43- 44
5.	1	17	-	entry = any one of 1 to 4 or 9	01	45
6.	1	18	-	i) entry = any one of 1 to 3 ii) If entry = 1 or 2, then entry exists in blocks 2, 3, 4, 5.1, 5.3 and 8	01	46
7.	1	19	-	entry = any one of 1, 2, 3 or 9 if and only if entry in item 18 is 2 or 3	01	47
8.	2	2(i)	3	entry = valid 6 digit date in the format of dd/mm/yy satisfying the following conditions: (i) yy = 11 or 12 (ii) 07 <= mm <= 12 if yy = 11 01<= mm <= 06 if yy = 12 (iii) 01<= dd <=31 if mm = 01, 03, 05, 07, 08, 10, 12 01<= dd <=30 if mm = 04, 06, 09, 11	01	48 - 53

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				01<= dd <= 29 if mm = 02		
9.	2	2(iv)	4	entry = valid 6 digit date in the format of dd/mm/yy satisfying the following conditions: (i) yy = 11 or 12 (ii) 07 <= mm <= 12 if yy = 11 01<= mm <= 09 if yy = 12 (iii) 01<= dd <=31 if mm = 01, 03, 05, 07, 08, 10, 12 01<= dd <=30 if mm = 04, 06, 09, 11 01<= dd <= 29 if mm = 02	01	54 - 59
10.	2	4/ 5	3	i) entry exists in items 4 and 5 if and only if entry in item 18 is 1 or 2 ii) entry in item 4 > entry in item 5 iii) 9 < entry in item 4 ≤ 210 iv) 5< entry in item 5 ≤ 60	01	60 - 62, 63 - 65
11.	2	6	3	entry = 1 or 2	01	66
12.	2	6	4	entry = 1 or 2	01	67
13.	3	1	-	entry = number of persons recorded in col. (1) of block 4.	02	43- 44
14.	3	2 & 3	-	If industry code is blank, occupation code will be blank and vice versa.	02	45-52
15.	3	2	-	entry = 5 digit valid code as per NIC-2008 (excluding codes 98100 and 98200) including specially structured codes 97001 to 97007 and 97009 or blank.	02	45- 49
16.	3	3	-	entry = 3 digit valid code as per NCO-2004or blank	02	50-52
17.	3	4	-	i) entry = any one of 1 to 5 or 9 for entry in item 5 of block 1 is 1 ii) entry = any one of 1 to 3 or 9 for entry in item 5 of block 1 is 2	02	53
18.	3	2,3 & 4	-	When NIC and NCO code = blank, then HH type code should be 9.	02	45-53

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
19.	3	5	-	entry = any one of 1 to 7 or 9	02	54
20.	3	6	-	entry = any one of 1 to 3 or 9	02	55
21.	3	5 & 6	-	entry in item 6 = 2 only if blk.3, item 5 = 1, 4 or 6	02	54,55
22.	3	7	-	i) entry \geq 0.000 hectares or blank ii) entry < 15.000	02	56- 63
23.	3	8	-	i) entry \geq 0.000 hectares or blank ii) entry < 15.000	02	64 – 71
24.	3	9	-	i) entry \geq 0.000 hectares or blank ii) entry < 15.000	02	72- 79
25.	3	10,11,12	-	entry exists in these columns if and only if entry = 1 in item 5 of block 1	02	80 - 83
26.	3	10	-	entry = 1 or 2	02	80
27.	3	11	-	entry exists if and only if entry in item 10 =1	02	81-82
28.	3	11	-	$1 \leq \text{entry} \leq (\text{number of household member of age 18 years and above})/2$	02	81-82
29.	3	12	-	entry exists if and only if entry in item 10 =1	02	83
30.	3	12	-	entry = 1 or 2	02	83
31.	4	all	1	serial number starts from 1 and is continuous without omission or duplication	03	41- 42
32.	4	all	3	i) entry = any one of 1 to 9 ii) entry =1 for serial number 1 in col. 1	03	43
33.	4	all	4	i) entry = 1 or 2 ii) for the codes 1 and 2 in col. 3, entries in col. 4 are different. iii) for the codes 3 and 4 in col. 3, entries in col. 4 are different.	03	44

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
34.	4	all	5	$0 \leq \text{entry} \leq 110$	03	45- 47
35.	4	all	6	entry = any one of 1 to 4	03	48
36.	4	all	6	entry \neq 1, if entry in col. 3 = any of 2, 3 or 4	03	48
37.	4	all	6	entry \neq 2, 3 or 4 if entry in col. 3 =5	03	48
38.	4	all	6	entry = 1, if age < 10	03	48
39.	4	all	6	Entry=2, if entry in col 3 =2	03	48
40.	4	all	7	entry in col. 7 = any one of the codes 01 to 13 except 09	03	49- 50
41.	4	all	8	entry in col. 8 = any one of 01 to 12	03	51- 52
42.	4	all	7, 5	i) entry in col. 7 =01, if entry in col. 5<3 ii) entry in col. 5 >13, if entry in col. 7 = 08 iii) entry in col. 5 >15, if entry in col. 7 = 10 or 11 iv) entry in col. 5 >18, if entry in col. 7 = 12 v) entry in col. 5 >20, if entry in col. 7 = 13	03	49- 50, 45-47
43.	4	all	8, 5	i) entry in col. 8=01, if entry in col. 5 <10 ii) entry in col. 5 >18, if entry in col. 8 = any of 02 and 08, 09, 10, 11, 12 iii) entry in col. 5 >15, if entry in col. 8 = 03, 04, 05, 06, 07	03	51– 52 45- 47
44.	4	all	7, 8	i) entry in col. 8 = 01, if entry in col. 7 = any of 01,02, 03, 04, 05, 06 ii) entry in col. 7 = any of 12, 13, if entry in col. 8 = any of 02 and 08, 09, 10, 11, 12 iii) entry in col. 7 = any of 11, 12 or 13, if entry in col. 8 is any of 03, 04, 05, 06, 07	03	49-50, 51- 52
45.	4	-	9	entry = any one of 01 to 05, 11 to 15, 21 to 43	03	53-54

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
46.	4	-	5, 9	<p>i) entry exists if and only if entry in column 5 < 30</p> <p>ii) entry in column 5 > 11, if entry in column 9 = 26,</p> <p>iii) entry in column 5 > 13, if entry in column 9 = 27 and 33 to 37</p> <p>iv) entry in column 5 > 15, if entry in col. 9 = any one of 28 to 31 and 38 to 42</p> <p>v) entry in column 5 > 18, if entry in col. 9 = 32 and 43</p>	03	45- 47 53- 54
47.	4	-	7 & 9	<p>i) if entry in col. 7 =01, entry in col. 9 is any of 01 to 05, 11 to 15, 21 to 24</p> <p>ii) if entry in col. 7 =02 or 03, entry in col. 9 is any of 11 to 15, 21 to 24</p> <p>iii) if entry in col. 7 =04, entry in col. 9 is any of 01 to 05, 11 to 15, 21 to 24</p> <p>iv) if entry in col. 7 =05, entry in col. 9 is any of 11 to 15, 21 to 24</p> <p>v) if entry in col. 7 =06, entry in col. 9 is any of 11 to 15, 25</p> <p>vi) if entry in col. 7 =07, entry in col. 9 is any of 11 to 15, 26</p> <p>vii) if entry in col. 7 =08, entry in col. 9 is any of 11 to 15, 27&34</p> <p>viii) if entry in col. 7 =10, entry in col. 9 is any of 11 to 15, 28 to 31, 33 to 42</p> <p>ix) if entry in col. 7 =11, entry in col. 9 is any of 11 to 15, 27, 28 to 31, 33 to 42</p> <p>x) if entry in col. 7 =12, entry in col. 9 is any of 11 to 15, 28 to 32, 33 to 42, 43</p> <p>xi) if entry in col. 7 =13, entry in col. 9 is any of 11 to 15, 32, 33 to 43</p>	03	49- 50 53- 54
48.	4	-	10	<p>i) entry exists if and only if entry in column 9 = any of 21 to 43</p>	03	55

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				ii) entry = any one of 1 to 5		
49.	4	-	11	i) entry exists if and only if $15 \leq \text{entry in col. 5} \leq 45$ ii) entry = any of 1, 2, 3 and 4	03	56
50.	4	-	12	i) entry exists if and only if $15 \leq \text{entry in col. 5} \leq 59$ ii) entry = any one of 1 to 7	03	57
51.	4	-	13,12	entry exists if and only entry in col.12 is 1 or 2	03	57 58-59
52.	4	-	13	entry in column 13 = any one of 01 to 21, 99	03	58-59
53.	4	-	14	(i) entry exists if and only if entry in col. 5 ≥ 18 with entry in item 5 of block 1 = 1 and entry in item 10 of block 3 =1.	03	60
54.	4	-	14	entry = any of 1 or 2.	03	60
55.	4	-	15	(i) entry exists, if and only if entry in col. 14 = 1	03	61
56.	4	-	15	entry = any of 1, 2 or 3.	03	61
57.	5.1	all	1	total number of persons recorded in column 1 of block 5.1 = total number of persons recorded in column 1 of block 4	04	41-42
58.	5.1	all	1 & 2	for each person recorded in this block, the serial number and age should exactly match with the serial number and the corresponding age entered in block 4 for that particular person	04	41-42 43-45
59.	5.1	all	3	entry = any one of the codes 11, 12, 21, 31, 41, 51, 81, 91 to 95, 97	04	46-47
60.	5.1, 4	all	3	if entry =91, entry in col. 9 of block 4 is not any of 01 to 05	04	46-47
61.	5.1	all	3,5	i) entry exists if and only if entry in column 3 = any one of 11, 12, 21, 31, 41 or 51	04	46-47 48-52
62.	5.1	all	5	entry in column 5 = valid 5-digit industry code as per NIC – 2008 (excluding codes 98100 and 98200) including	04	48-52

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				especially structured codes 97001 to 97007 and 97009		
63.	5.1	all	3,6	i) entry exists if and only if entry in column 3 = any one of 11, 12, 21, 31, 41 or 51	04	46- 47 53- 55
64.	5.1	all	6	entry in column 6 = valid 3-digt code as per NCO-2004	04	53-55
65.	5.1	all	7	entry = 1 or 2	04	56
66.	5.1	-	8, 9, 10, 11	entry exists in these columns if and only if {the first two digits from left in column 5 = any of 02 to 99 or the first three digits from left in column 5 is any of 014, 016 or 017 }	04	57-58 59,60,61
67.	5.1	-	8	entry = any one of 10 to 19, 20 to 29 or 99	04	57-58
68.	5.1	-	9	entry = any one of 1 to 9	04	59
69.	5.1	-	10	entry = any one of 1, 2 or 9	04	60
70.	5.1	-	11	entry = any one of 1 to 4, 9	04	61
71.	5.1	-	12, 13, 14, 15	entry exists in these columns if and only if: a) entry in column 3 is any of 31, 41 or 51 and b) {the first two digits from left in column 5 = any of 02 to 99 or the first three digits from left in column 5 is any of 014, 016 or 017 }	04	62,63, 64, 65
72.	5.1	-	12	entry = any one of 1 to 4	04	62
73.	5.1	-	13	entry = either 1 or 2	04	63
74.	5.1	-	14	entry = any one of 1 to 9	04	64
75.	5.1	-	15	entry = any one of 1 to 5	04	65
76.	5.1	-	16	i) entry exists if and only if entry in column 2 \geq 5 ii) entry = any of 1 to 6	04	66
77.	5.2	all	1	total number of persons recorded in column 1 of block 5.2 =	05	41- 42

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				total number of persons with code 1 recorded in column 7 of block 5.1		
78.	5.2	all	1 & 2	for each person recorded in this block, the serial number and age should exactly match with the serial number and the corresponding age entered in block 5.1 for that particular person	05	41- 42, 43 – 45
79.	5.2	all	3	entry = any one of 11, 12, 21, 31, 41 or 51	05	46 – 47
80.	5.2	all	5	entry in column 5 = valid 5-digit industry code as per NIC – 2008 (excluding codes 98100 and 98200) including specially structured codes 97001 to 97007 and 97009	05	48 – 52
81.	5.2	all	6	entry in column 6 = valid 3-digit code as per NCO-2004	05	53 – 55
82.	5.2	-	7, 8, 9, 10	entry exists in these columns if and only if {the first two digits from left in column 5 = any of 02 to 99 or the first three digits from left in column 5 is any of 014, 016 or 017 }	05	56 -57, 58, 59, 60
83.	5.2	-	7	entry = any one of 10 to 19, 20 to 29 or 99	05	56 –57
84.	5.2	-	8	entry = any one of 1 to 9	05	58
85.	5.2	-	9	entry = any one of 1, 2 or 9	05	59
86.	5.2	-	10	entry = any one of 1 to 4, 9	05	60
87.	5.2	-	11, 12, 13, 14	entry exists in these columns if and only if: a) entry in column 3 is any of 31, 41 or 51 and b) {the first two digits from left in column 5 = any of 02 to 99 or the first three digits from left in column 5 is any of 014, 016 or 017 }	05	61, 62, 63, 64
88.	5.2	-	11	entry = any one of 1 to 4	05	61
89.	5.2	-	12	entry = either 1 or 2	05	62
90.	5.2	-	13	entry = any one of 1 to 9	05	63
91.	5.2	-	14	entry = any one of 1 to 5	05	64

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
92.	5.3	all	1	total number of persons recorded in column 1 of block 5 = total number of persons recorded in column 1 of block 4	06	41 – 42
93.	5.3	all	1 & 2	for each person recorded in this block, the serial number and age should exactly match with the serial number and the corresponding age entered in block 4 for that particular person	06	41 - 42, 43 – 45
94.	5.3	all	3	for each serial number recorded in column 1, entry in column 3 is continuous starting from 1	06	46
95.	5.3	all	4	entry = any one of 11, 12, 21, 31, 41, 42, 51, 61, 62, 71, 72, 81, 82, 91 to 95, 97, 98	06	47 – 48
96.	5.3	-	4	In respect of hhld member with more than one activity Status code 71 & 72 should appear only when status code 31 is present. Modified other combination may appear.	06	47 – 48
97.	5.3	-	5	entry exists if and only if entry in column 4 = any one of 11 to 72	06	49 – 50
98.	5.3	-	5	entry = a valid 2-digit NIC -2008 division code (excluding codes 98).	06	49 – 50
99.	5.3	-	6	entry exists if and only if entry in item 5 of block 1 = 1 and entry in column 4 of block 5.3 = any one of 11 to 72	06	51 – 52
100.	5.3	-	6	entry= any one of the codes 01 to 08, 10 to 15	06	51 – 52
101.	5.3	-	5, 6	i) entry =any one of codes 01 to 08, 10 to 12, 14 and 15 if entry in column 5 = any one of 01 to 03 ii) entry= either 13 or 15 if entry in column 5 = any one of 05 to 99	06	49 - 50, 51- 52
102.	5.3	all	7 to 13	i) for any serial number recorded in column 3, entry for each of the columns 7 to 13 = 1.0 or 0.5 or blank (ii) for each day (i.e., for each of the columns 7 to 13), total intensity (over all the serial numbers reported for a person in column 3) = 1.0 (iii) for any serial number recorded in column 1, if entry in column 3 is only 1, then entry = 1.0 in all the columns 7	06	53 -54, 55 - 56, 57 - 58, 59 - 60, 61 - 62, 63 - 64, 65 – 66

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				to 13 against that activity		
103.	5.3	all	14	i) number of entries = number of activities reported in col. 3 ii) entry for an activity = sum of entries in column 7 to column 13 against that activity iii) entry for an activity = a multiple of 0.5 iv) $0.5 \leq \text{entry for an activity} \leq 7.0$ v) if entry in column 3 is only 1, then entry in col. 14 = 7.0 against that activity vi) for a serial number entered in column 1, sum of entries in column 14 (over all the serial numbers reported for a person in col.3) = 7.0	06	67 – 68
104.	5.3	-	15 to 17	entry in col. 15 and/or in col. 16 > 0 if and only if entry in column 4 is any of 31, 41, 42, 51, 71, 72	06	69 - 76, 77 -84, 85 – 92
105.	5.3	-	15	i) $20 \leq (\text{entry in col. 15}/\text{entry in col. 14}) \leq 2000$, if entry in col. 4 = 31, 71 or 72 ii) $10 \leq (\text{entry in col. 15}/\text{entry in col. 14}) \leq 200$, if entry in col. 4 = 51 iii) $60 \leq (\text{entry in col. 15}/\text{entry in col. 14}) \leq 100$, if entry in col. 4 = 41, 42	06	69 – 76
106.	5.3	-	16	ii) $0 \leq (\text{entry in col. 16}/\text{entry in col. 14}) \leq 200$, if entry in col. 4 = 31, 71 or 72 ii) $0 \leq (\text{entry in col. 16}/\text{entry in col. 14}) \leq 40$, if entry in col. 4 = 51 iii) $0 \leq (\text{entry in col. 16}/\text{entry in col. 14}) \leq 30$, if entry in col. 4 = 41, 42	06	77-84
107.	5.3	-	17	i) $10 \leq (\text{entry in col. 17}/\text{entry in col. 14}) \leq 2000$, if entry in col. 4 = 31, 71 or 72 ii) $10 \leq (\text{entry in col. 17}/\text{entry in col. 14}) \leq 200$, if entry in col. 4	06	85 – 92

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				= 51 iii) $60 \leq (\text{entry in col. 17} / \text{entry in col. 14}) \leq 120$, if entry in col. 4 = 41,42		
108.	5.3	-	15 to 17	entry in col. 17 = entry in col. 15 + entry in col. 16	06	69 - 76, 77 - 84, 85 - 92
109.	5.3	-	18	(i) entry exists iff entry in col.(4) = 31, 41, 42, 51, 71, 72 (ii) col.(18) = 01 to 05, 16 to 20 if and only if (col.(15) > 0 and col.(16) = 0) (iii) col.(18) = 06 to 10, 21 to 25 if and only if (col.(15) = 0 and col.(16) > 0) (iv) col.(18) = 11 to 15, 26 to 30 if and only if (col.(15) > 0 and col.(16) > 0)	06	93 - 94
110.	5.3	-	19	entry exists if and only if entry in column 4 is any one of 11, 12, 21, 31, 41, 42, 51,61,62,71,72	06	95
111.	5.3	-	19	$0 \leq \text{entry} \leq 7$	06	95
112.	5.3	-	19	entry \leq number of days with total intensity 0.5 against any of the activity status 11, 12, 21, 31, 41, 42, 51 in column 4	06	95
113.	5.3	all	20	if one of the codes 11 to 72 is recorded in column 4, then entry in column 20 will be one of the codes 11 to 72 for which entry in column 14, corresponding to the serial number recorded in column 3, is highest	06	96 - 97
114.	5.3	all	20	if one of the codes 81 or 82 is recorded in column 4 and none of the codes are 11 to 72 in column 4, then entry in column 20 will be one of the codes 81 or 82 for which entry in column 14, corresponding to the serial number recorded in column 3, is highest	06	96 - 97
115.	5.3	all	20	if entry in column 4 is none of 11 to 82, entry in column 20 will be one of 91 to 98 for which entry in column 14, corresponding to the serial number recorded in column 3, is	06	96 - 97

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				highest		
116.	5.3	-	21	entry exists if and only if entry in col. 20 is any of 11 to 72	06	98 – 102
117.	5.3	-	21	entry in column 21 = valid 5-digit industry code as per NIC – 2008 (excluding codes 98100 and 98200) including specially structured codes 97001 to 97007 and 97009	06	98 – 102
118.	5.3	-	22	entry exists if and only if entry in col. 20 is any of 11 to 72	06	103 –105
119.	5.3	-	22	entry = valid 3-digit code as per NCO -2004	06	103 –105
120.	5.3	all	23	entry =1 or 2	06	106
121.	5.3	all	23	entry = 1 if and only if entry in col. 4 is none other than 81 and/or 82	06	106
122.	5.3	-	24	(i) entry exists if and only if entry in col. 23=1 (ii) entry= any one of 1 to 8	06	107
123.	5.3, 5.1	-	24, 3	If entry in col-24 = 7 or 8, the entry in col-3 of block-5.1 for that person will be 81.(Entry in BI 5.1 should not be changed on the basis of the entry in Col 24)	06	107
124.	6	-	1 & 2	all persons with codes 11 to 51 either in column 3 of block 5.1 or in column 3 of block 5.2 are reported here	07	41 - 42, 43 - 45
125.	6	-	1 & 2	for each person recorded in this block, serial number and age should exactly match with the serial number and the corresponding age entered in column 1 and column 2 of block 5.1 for the person with activity status code 11 to 51 in col. 3 of block 5.1 or with entry 1 in col. 7 of block 5.1	07	41 - 42, 43 - 45
126.	6	all	3	entry = entry in column 3 of block 5.1 corresponding to the particular person srl. no. recorded in column 1	07	46- 47
127.	6	all	3	entry = any of 11, 12, 21, 31, 41, 51, 81, 91 to 95 & 97	07	46 – 47
128.	6	all	4	entry = any of 11,12, 21, 31, 41, 51 or blank	07	48 – 49
129.	6	all	4	if entry is any of 11, 12, 21, 31, 41, 51 then entry = entry in column 3 of block 5.2 corresponding to the particular person	07	48 – 49

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				srl. no. recorded in column 1 of block 6		
130.	6	all	4	if entry in column 3 is any of 81, 91 to 95, 97, then entry in column 4 = any of 11 to 51	07	48 – 49
131.	6	all	5	entry= either 1 or 2	07	50
132.	6	all	6	entry= either 1 or 2	07	51
133.	6	all	7	$0 \leq \text{entry} \leq 12$	07	52 – 53
134.	6	-	6, 7	If $\text{col.}(7) \geq 7$ then $\text{col.}(6) = 2$.	07	51, 52 – 53
135.	6	-	8	entry exists if and only if entry in column 7 ≥ 1	07	54
136.	6	-	8	entry = any one of 1, 2, 3	07	54
137.	6	-	3, 7, 8	If $\text{col.}(7) \geq 7$ and $\text{col.}(8) = 1$, then $\text{col.}(3) = 81$	07	46 - 47, 52 - 53, 54
138.	6	-	9	entry exists if and only if entry in column 8 = either 1 or 2	07	55
139.	6	-	9	entry = any one of 1, 2, 3,4,5	07	55
140.	6	-	9	If entry in $\text{col.}(9) = 1$, for a member with entry in $\text{col.}(2)$ between (15 - 45) then $\text{col.}(11)$ of Blk.4 =1 for the corresponding member.	07	55
141.	6	all	10	entry = any of 1 to 3	07	56
142.	6	-	11	entry exists if and only if entry in column 10 = either 1 or 2	07	57
143.	6	-	11	entry = any one of the codes 1 to 3 or 9	07	57
144.	6	-	12	entry = any one of 1 to 3	07	58
145.	6	-	13	entry exists if and only if entry in column 12 = either 1 or 2	07	59
146.	6	-	13	entry = any one of the codes 1 to 5 or 9	07	59
147.	6	-	13	If entry in $\text{col.}(13) = 5$, then entry in $\text{col.}(3)$ and/or $\text{col.}(4)$	07	59

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				needs to be 11, 12, 21		
148.	6	all	14	entry = any one of 1, 2 or 9	07	60
149.	6	-	15	entry exists if and only if entry in column 14 = 1	07	61
150.	6	-	15	entry = either 1 or 2	07	61
151.	6	all	16	entry = either 1 or 2	07	62
152.	7	1	-	all persons with codes 92 or 93 in col. 3 of block 5.1 are reported in this block	08	41-42
153.	7	1 & 2	-	for each person recorded in this block, srl. no. and age should exactly match with the srl. no. and corresponding age entered in column 1 and column 2 of block 5.1 for that particular person	08	41 -42, 43 – 45
154.	7	3	all	entry= either 1 or 2	08	46
155.	7	4	-	entry exists if and only if entry in item 3 = 1	08	47
156.	7	4	-	entry = any one of 1 to 3 or 9	08	47
157.	7	5	-	entry exists if and only if entry in item 3 = 2	08	48
158.	7	5	-	entry = any one of 1, 2 or 9	08	48
159.	7	6, 7, 8, 9		entry = either 1 or 2	08	49, 50, 51, 52
160.	7	10, 11, 12, 13, 14	-	entry = any one of 1, 2, 3	08	53, 54, 55, 56, 57
161.	7	15 to 18	-	entry = either 1 or 2	08	58, 59, 60,61
162.	7	19	-	entry exists if and only if entry in item 5 of block 1 =1	08	62
163.	7	19	-	entry = either 1 or 2	08	62
164.	7	20	-	entry exists if and only if entry in item 19 =1	08	63 – 65

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
165.	7	20	-	$0 \leq \text{entry} \leq 5$	08	63 – 65
166.	7	21	-	entry = either 1 or 2	08	66
167.	7	22 to 25	-	entry exists in these items if entry in item 21 =1. Otherwise, entries in these items are blank.	08	67, 68, 69, 70
168.	7	22	-	entry = any one of 1 to 4	08	67
169.	7	23	-	entry = any one of 1 to 9	08	68
170.	7	24	-	entry = either 1 or 2	08	69
171.	7	25	-	entry = any one of 1 to 7 or 9	08	70
172.	8	1	3	(entry in srl. no. 1) / (entry in item 1 of block 3) < 600	09	43-50
173.	8	2	3	(entry in srl. no. 2) / (entry in item 1 of block 3) < 250	09	43 – 50
174.	8	3 & 4	3	[(entry in srl. no. 3+ entry in srl. no. 4) / (entry in item 1 of block 3)] < 800	09	43-50
175.	8	5	3	(entry in srl. no. 5) / (entry in item 1 of block 3) < 250	09	43-50
176.	8	6	3	(entry in srl. no. 6) / (entry in item 1 of block 3) < 600	09	43-50
177.	8	7	3	(entry in srl. no. 7) / (entry in item 1 of block 3) < 600	09	43-50
178.	8	8	3	(entry in srl. no. 8) / (entry in item 1 of block 3) < 1200	09	43-50
179.	8	9	3	(entry in srl. no. 9) / (entry in item 1 of block 3) < 150	09	43-50
180.	8	10	3	(entry in srl. no. 10) / (entry in item 1 of block 3) < 150	09	43-50
181.	8	11	3	(entry in srl. no. 11) / (entry in item 1 of block 3) < 2000	09	43-50
182.	8	12	3	entry in srl. no. 12 < 1500	09	43-50
183.	8	13	3	entry in srl. no. 13 < 3000	09	43-50
184.	8	14	3	entry in srl. no. 14 < 2500	09	43-50
185.	8	15	3	entry in srl. no. 15 < 2500	09	43-50

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/ line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
186.	8	16	3	entry in srl. no. 16 < 2000	09	43-50
187.	8	17	3	entry in srl. no. 17 < 3000	09	43-50
188.	8	18	3	entry in srl. no. 18 < 3000	09	43-50
189.	8	19	3	entry in srl. no. 19 < 5000	09	43-50
190.	8	20	3	entry in srl. no. 20 < 12000	09	43-50
191.	8	21	3	entry in srl. no. 21 < 3000	09	43-50
192.	8	22	3	entry in srl. no. 22 < 5000	09	43-50
193.	8	24	4	entry in srl. no. 24 < 100000	09	51- 58
194.	8	25	4	entry in srl. no. 25 < 100000		
195.	8	26	4	entry in srl. no. 26 < 15000	09	51- 58
196.	8	27	4	(entry in srl. no. 27) / (entry in item 1 of block 3) < 7000	09	51- 58
197.	8	28	4	(entry in srl. no. 28) / (entry in item 1 of block 3) < 2500	09	51- 58
198.	8	29	4	entry in srl. no. 29 < 70000	09	51- 58
199.	8	30	4	entry in srl. no. 30 < 10000	09	51- 58
200.	8	31	4	entry in srl. no. 31 < 60000	09	51- 58
201.	8	32	4	entry in srl. no. 32 < 50000	09	51- 58
202.	8	33	4	entry in srl. no. 33 < 300000	09	51- 58
203.	8	34	4	entry in srl. no. 34 < 600000	09	51- 58
204.	8	35	4	entry in srl. no. 35 < 10000	09	51- 58
205.	8	36	4	entry in srl. no. 36 < 50000	09	51- 58
206.	8	37	4	entry in srl. no. 37 < 50000	09	51- 58
207.	8	23	3	entry = sum of entries against items 1 to 22. Derived entry is provided in the error list	09	51- 58

sl. no.	reference to schedule			Type of consistency	reference in the layout	
	block	item/ line	col.		level	byte position
(1)	(2)	(3)	(4)	(5)	(6)	(7)
208.	8	38	4	entry = sum of entries against items 24 to 37. Derived entry is provided in the error list	09	51- 58
209.	8	39	3	$\frac{30}{365}$ x (entry in item 38) entry=	09	43 - 50
210.	8	40	3	entry=entry in item 23 + entry in item 39	09	43 - 50
211.	8	40	3	$0 < \text{entry} \leq 40000$	09	43 - 50
212.	8	40	3	$0 < (\text{entry}/\text{entry in item 1 of block 3}) < 12000$	09	43 - 50

Computer Scrutiny Programme Schedule 1.0: Household Consumer Expenditure
NSS 68th Round (July 2011 – June 2012)

Error code	Sch. type	reference to schedule			level	Byte position	Scrutiny point
		block	item	coln			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	1,2	1	13	-	01	32	Sample hamlet-gr./ sub-block no. = 1 or 2
2.	1,2	1	14	-	01	33	Second stage stratum = 1, 2 or 3
3.	1,2	1	15	-	01	34-35	Sample household number = any one of 1 to 8
4.	1,2	1	16	-	01	43-44	Entry = 99 or any one of 1 to last serial number of column 1 of block 4
5.	1,2	1	17	-	01	45	Response code = 1 – 4 or 9
6.	1,2	1	18	-	01	46	(i) Survey code = 1 or 2 or 3. (ii) If code = 1 or 2 then entry exists in blocks 3 & 4.
7.	1,2	1	18 & 19	-	01	46 47	Survey code = 1 and reason for substitution = blank OR, Survey code = (2 or 3) and reason for substitution = (1, 2, 3 or 9)
8.	1,2	2	2(i)	3	01	48-53	Entry is a valid date between 01.07.11 and 30.06.12
			2(iv)	3	01	54-59	Entry is a valid date between 01.07.11 and 30.09.12
9.	1,2	2	4	3	01	60-62	10 < Time to canvass < 210
10.	1,2	2	5(i), 5(ii)	3, 4	01	63, 64 65, 66	Entry = 1 or 2
11.	1,2	3	1	-	02	43-44	HH size = no. of persons listed in block 4.
12.	1,2	3	2	-	02	45-49	Industry code = admissible 5-digit code (‘-’ or blank entry is valid)
13.	1,2	3	3	-	02	50-52	Occupation code = admissible 3-digit code (‘-’ or blank entry is valid)
14.	1,2	3	2, 3	-	02	45-49 50-52	If industry code is blank, occupation code will be blank and vice versa.
15.	1,2	3	4	-	02	53	HH type code = 1-5 or 9 for rural = 1-3 or 9 for urban
16.	1,2	3	5	-	02	54	Religion code = 1-7 or 9
17.	1,2	3	6	-	02	55	Social group code = 1-3 or 9
18.	1,2	3	7	-	02	56	Entry=1 or 2
19.	1,2	3	7 & 9	-	02	56, 58-65	If item 9 ≥ 0.000, then item 7 = 1.
20.	1,2	3	7 & 8	-	02	56, 57	If item 7 = 1, then item 8 = 1, 2 or 3 If item 7 = 2, then item 8 is blank
21	1,2	3	9 10 11 12	-	02	58-65 66-73 74-81 82-89	Entry < 15.000

Error code	Sch. type	reference to schedule			level	Byte position	Scrutiny point
		block	item	coln			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
22	1,2	3	13	-	02	90-97	0.000 ≤ Entry < 15.000
23	1,2	3	14	-	02	98-105	Entry < 15.000
24	1,2	3	9 to 13	-	02		item 13 = item 9 + item 10 + item 11 – item 12
25	1,2	3	2 3 4	-	02	45-49 50-52 53	If both NIC and NCO codes are blank then household type should be '9'.
26	1,2	3	4	-	02	53	For rural household, if item 4 = 3 then item 19 = 1 For urban household, if item 4 = 2 then item 19 = 1
			19	-	03	47	
27	1,2	3	14, 15	-	02	98-105 106-113	(i) item 15 ≤ item 14 (ii) item 15 < 15,000
28	1,2	3	18	-	03	46	Entry = 1 - 3 or 9
29	1,2	3	16	-	03	43-44	Cooking code = 01 –10
30	1,2	3	17	-	03	45	Lighting code = 1 – 6 or 9
31	1,2	3	16	-	03	43-44	<u>If entry equals</u> 01 330 + 337 02 331 03 338 04 342 05 333 06 340 07 334 + 335 08 332 09 345
		6		6	05	69-76	
32	1,2	3	17	-	03	45	<u>If entry equals</u> 1 334 + 335 2 345 4 341 5 332
		6		6	05	69-76	
33	1,2	3	20 21	-	03	48 49-52	If item 20 entry =1, then item 21 entry > 0
34	1,2	3	20 21	-	03	48 49-52	If ceremony code (item 20) =1 then item 21 > 10
35	1,2	3	19, 20,22	-	03	47, 48, 53	Entry = 1 or 2
36	1,2	3	22,23	-	03	53, 54	'Type of ration card' code =1, 2 or 3 if item 22 = 1 = blank if item 22 = 2
37	1	3	24	-	03	55-63	Entry is within 5% interval of derived MPCE for 30 days Uniform Reference Period
38	1	3	25	-	03	64-72	Entry is within 5% interval of derived MPCE for 30 & 365 days Mixed Reference Period

Error code	Sch. type	reference to schedule			level	Byte position	Scrutiny point
		block	item	coln			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
39	2	3	24	-	03	55-63	Entry is within 5% interval of derived MPCE
40	1	3	24,25	-	03	55-63 64-72	Entry < the upper limit, as given in Annexure II
41	2	3	24	-	03	55-63	Entry < the upper limit, as given in Annexure II
42	1,2	3	16	-	03	43-44	If cooking code =10, then col.14 of block 4 = 0 or blank.
		4	Each	14	04	62-63	
43	1,2	4	Each	1	04	41-42	Entries are continuous starting from 1 without any omission or duplication
44	1,2	4	„	3	04	43	Relation code = 1-9
45	1,2	4	„	3	04	43	Relation code = 1 for one and only one member
46	1,2	4	„	3, 6	04	43, 48	(i) For the hhld member with entry in Blk.4, col.(3) = 2, entry in col.(6) = 2 (ii) For the hhld member with entry in Blk.4, col.(3) = 3 or 4 or 7, entry in col.(6) ≠ 1 (iii) For the hhld member with entry in Blk.4, col.(3) = 5, entry in col.(6) = 1 only
47	1,2	4	„	4	04	44	Sex code = 1 or 2
48	1,2	4	„	4	04	44	Sex code for relation code 2 (when relation code 2 exists) is not same as sex code for relation code 1
49	1,2	4	„	5	04	45-47	0 ≤ Age ≤ 110
50	1,2	4	„	6	04	48	Marital status code = 1- 4
51	1,2	4	„	5 6	04	45-47 48	Marital status code = 1 if age < 10
52	1,2	4	„	5 10	04	45-47 54-55	If col.10 > 0 then col.5(age) <16
53	1,2	4	„	7	04	49-50	Education code = 01-08, 10 - 13
54	1,2	4	„	5 7	04	45-47 49-50	Education code = 01, if age (col.5) <3 = 06, only if age > 7 = 07, only if age > 10 = 08, only if age > 13 = 10, only if age > 15 = 11, only if age > 12 = 12, only if age > 19 = 13, only if age > 21
55	1,2	4	„	8	04	51-52	No. of days stayed away ≤ 30
56	1,2	4	„	9	04	53	No. of meals taken in a day = 0, 1 – 3
57	1,2	4	„	9	04		If entry = 0 check whether age is zero
58	1,2	4	„	10 to 14	04	54-55 56-57	Entry ≤ 90
59	1,2	4	„	10 to 14	04	58-59 60-61 62-63	Columns: 10+11+12+13+14 ≤ 90 > 0, if age > 0 = 0, if age = 0

Error code	Sch. type	reference to schedule			level	Byte position	Scrutiny point
		block	item	coln			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
60	1	4	all	10	04	54-55	Sum of entries in col.10, bl.4 \leq No. of cooked meals received as assistance (bl.5.2, item 282, col.5).
		5.2	282	5	05	60-68	
61	1,2	4	All	13	04	60-61	Entry in item 280, col. 5 (meals purchased) \leq S13 + G, where S13 = sum of entries in col.13, bl.4 and G = no. of meals served to non-hh members (bl.3, item 21)
		5.2	280	5	05	60-68	
		3	21	-	03	49-52	
62	1	4	-	13	04	60-61	If sum of entries in col.13, bl.4 $>$ 0, then no. of cooked meals purchased (item 280, col.5) $>$ 0 or item 284, col.6 $>$ 0.
		5.2	280	5	05	60-68	
			284	6	05	69-76	
63	1,2	4	-	11	04	56-57	For type 1 schedule, sum of entries in col.11, bl.4 = no. of cooked meals received free in workplace (bl.5.2, item 281, col.5). For type 2 schedule, sum of entries in col.11, bl.4 $>$ no. of cooked meals received free in workplace (bl.5.2, item 281, col.5).
		5.2	281	5	05	60-68	
64	1, 2	5.1	129	5	05	60-68	Let N = hh size, G = no. of meals served to non-hh persons(block 3, item 21), Then, item 129 (kg) $<$ 30N + G/2
65	1,2	5.1	160	5	05	60-68	Let N = hh size, G = no. of meals served to non-hh persons(block 3, item 21), Ceremony = entry in block 3, item 20. Then, item 160 (litre) $<$ 100N +G, if Ceremony =2 $<$ 100N +4G if Ceremony =1
66	1,2	5.1	129 159 189		05		<i>Lower ranges may be checked for the sub-total items(Cereals, pulses and edible oil).</i>
67	1,2	5.1	159	5	05	60-68	Let N = hh size, G = no. of meals served to non-hh persons(block 3, item 21), Ceremony = entry in block 3, item 20. Then , item 159 (kg) $<$ 3N+ G/5 if Ceremony =2 $<$ 3N+ G/3 if Ceremony =1
68	1,2	5.1	171 To 175	5	05	60-68	Let N = hh size, G = no. of meals served to non-hh persons(block 3, item 21), Ceremony = entry in block 3, item 20. Then , sum of items [171 to 175] (kg) $<$ 3N+ G/5 if Ceremony =2 $<$ 3N+ G/3 if Ceremony =1
69	1	5.2	189	5	05	60-68	Let N = hh size, G = no. of meals served to non-hh persons(block 3, item 21), Ceremony = entry in block 3, item 20. Then , item 189 (kg) $<$ 3N+ 0.2G if Ceremony =2 $<$ 3N+ 0.3G if Ceremony =1
70	1	5.2	269	5	05	60-68	Let N = hh size, G = no. of meals served to non-hh persons(block 3, item 21), Ceremony = entry in block 3, item 20. Then , item 269 (gm) $<$ 1000N+ 15G if Ceremony =2 $<$ 1000N+ 50G if Ceremony =1

Error code	Sch. type	reference to schedule			level	Byte position	Scrutiny point
		block	item	coln			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
71	2	5.2	189	5	05	60-68	Let N = hh size, G = no. of meals served to non-hh persons(block 3, item 21), Ceremony = entry in block 3, item 20. Then , item 189 (kg) < 0.75N+ 0.2G if Ceremony =2 < 0.75N+ 0.3G if Ceremony =1
72	2	5.2	269	5	05	60-68	Let N = hh size, G = no. of meals served to non-hh persons(block 3, item 21), Ceremony = entry in block 3, item 20. Then , item 269 (gm) < 250N+ 15G if Ceremony =2 < 250N+ 50G if Ceremony =1
73	1,2	5.1 to 8	Each	3 4	05/0 6	43-51 52-59	Value > 0, if Quantity > 0 and vice versa, where quantity column is not shaded
74	1,2	5.1 to 6	„	5 6	05	60-68 69-76	Value > 0, if Quantity > 0 and vice versa, where quantity column is not shaded
75	1	7 & 8	„	5 6	05/0 6	60-68 69-76	Value > 0, if Quantity > 0 and vice versa, where quantity column is not shaded
76	1,2	5.1 to 8	„	3 4	05	43-51 52-59	Price = (value/quantity) for quantity > 0 falls within the price range as given in <u>Annexure – I</u>
77	1,2	5.1 to 6	„	5 6	05	60-68 69-76	Price = (value/quantity) for quantity > 0 falls within the price range as given in <u>Annexure – I</u>
78	1	7 & 8	„	5 6	06	60-68 69-76	Price = (value/quantity) for quantity > 0 falls within the price range as given in <u>Annexure - I</u>
79	1,2	5.1 to 6	„	3 5	05	43-51 60-68	Qty in col.(3) ≤ Qty in col.(5)
80	1,2	5.1 to 6	„	3 4 5 6 7	05	43-51 52-59 60-68 69-76 77	(i) If for an item Quantity & Value reported in columns 3 & 4 are same with Quantity & Value reported in columns 5 & 6 respectively, then the source code in col-7 will be 2 and vice-versa. (ii) If the source code in col-7 is 3, then the Quantity & Value reported in columns 3 & 4 will be less than those reported in columns 5 & 6 respectively.
81	1,2	5.1 to 6	„	4 6	05	52-59 69-76	Value in col.(4) ≤ Value in col.(6)
82	1,2	5.1 to 6	„	7	05	77	(i) Source code = 1 for items 101, 107, 171, 334 (ii) Source code needs to be 1, 5, 6 or 9 for items with* mark (items 105, 106, 111, 112, 113, 114, 161, 162, 163, 164, 165, 166, 167, 172, 174, 180, 275, 277, 283, 284, 290, 291,292,293,294,295,296,301, 322, 323, 324, 335, 336,338,343,344). (iii) Source code = 1-6, 9 for all other items for which col.7 cell not shaded.
83	1	7 & 8	„	3 5	06	43-51 60-68	Qty in col.(3) ≤ Qty in col.(5)
84	1	7 & 8	„	4 6	06	52-59 69-76	Value in col.(4) ≤ Value in col.(6)
85	1	9	„	3 4	07	43-50 51-58	Value in col.(3) ≤ Value in col.(5)

Error code	Sch. type	reference to schedule			level	Byte position	Scrutiny point
		block	item	coln			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
86	1,2	5.1 to 8	Each	3	05 06	43-51	If subtotal (s.t.) is not shaded, s.t.= sum of constituent items
87	1,2	5.1 to 8	„	4	05 06	52-59	If subtotal (s.t.) is not shaded, s.t.= sum of constituent items
88	1,2	5.1 to 8	„	5	05 06	60-68	If subtotal (s.t.) is not shaded, s.t.= sum of constituent items
89	1,2	5.1 to 8	„	6	05 06	69-76	If subtotal (s.t.) is not shaded, s.t.= sum of constituent items
90	1,2	9 10	„	3	07 08	43-50	If subtotal (s.t.) is not shaded, s.t.= sum of constituent items
91	1	9	„	4	07	51-58	If subtotal (s.t.) is not shaded, s.t.= sum of constituent items
92	1,2	3	18	-	03	46	Item 520 (house rent) >0 if dwelling unit code (item 18, bl.3) =2 (hired)
		10	520	3	08	43-50	
93	1,2	3	18	-	03	46	For Rural sample, Imputed rent (item 539) = blank. For Urban sample, Item 539 > 0, if dwelling unit code (item 18, bl.3) = 1.
		10	539	3	08	43-50	
94	1,2	3	18	-	03	46	For Urban sample, if imputed rent (item 539) > 0, then dwelling unit code (item 18, bl.3) = 1 or 9
		10	539	3	08	43-50	
95	1,2	3	18	-	03	46	For Urban sample, Item 520 (house/garage rent) < item 539 (imputed rent) if dwelling unit code (item 18, bl.3) = 1 (owned)
		10	520 539	3	08	43-50	
96	1,2	6	338	6	05	69-76	If item 338 > 0, then col.3, item 586 = 1
		11	586	3	09	43	
97	1,2	10	437	3	08	43-50	If item 437 > 0, then col.3, item 561 = 1
		11	561	3	09	43	
98	1,2	10	487	3	08	43-50	If item 487 > 50, then col.3, item 624 = 1
		11	624	3	09	43	
99	1,2	10	488	3	08	43-50	If item 488 > 0, then col.3, item 623 = 1
		11	623	3	09	43	
100	1,2	10	508 510 511	3	08	43-50	If Blk.10 (item 508 + item 510 + item 511) > 0 then either item 601 or item 602 = 1
		11	601 602	3	09	43	
101	1	11	659	6	09	48-55	Item 659 = sum of all constituent sub-total items of Bl 11.
102			559	7		56-63	
103			569 579	8		64-71	
104			599	9		72-79	
105			609	12		84-91	
106			619 629	13		92-99	
107			639	15		103-110	
108			649	16		111-118	

Error code	Sch. type	reference to schedule			level	Byte position	Scrutiny point
		block	item	coln			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
109	2	11	- do -	6	09	48-55	Item 659 = sum of all constituent sub-total items of BI 11.
110				7		56-63	
111				9		67-74	
112				10		75-82	
113	1,2	11	Each	3	09	43	For type-1, if [col.(4) >0 or Col.(10) >0 or Col.(14) >0], then col.(3) = 1 For type-2, if [col.(4) > 0 or col.(8) > 0] then col.(3) = 1
114	1,2	11	„	4 5	09	44-46 47	If col.(4) > 0 then col.(5) = 1 or 2
115	1,2	11	„	6	09	48-55	If subtotal (s.t.) is not shaded, s.t.= sum of constituent items
116	1,2	11	„	7	09	56-63	
117	1	11	„	8	09	64-71	
118	1,2	11	„	9	09		
119	2	11	„	10	09	75-82	
120	1	11	„	12	09	84-91	If subtotal (s.t.) is not shaded, s.t.= sum of constituent items
121				13		92-99	
122				15		103-110	
123				16		111-118	
124	1,2	11	„	3	09	43	Col.(3) = 1 or 2 for item codes 550-552, 560-565, 570-573, 580-582, 584-588, 590, 600-602, 620, 622-624, 649
125	1,2	11	„	3 9 16 10	09	43 72-79 111-118 75-82	If col.3 is shaded, (col.9 + col.16) >0 for other item codes (for type – 1) col.10 > 0 for other item codes (for type – 2)
126	1	11	„	4 10		44-46 80-82	col.(10) ≥ col.(4)
127	1	11	„	6 12		48-55 84-91	col.(12) ≥ col.(6)
128	1	11	„	7 13		56-63 92-99	col.(13) ≥ col.(7)
129	1	11	„	8 15		64-71 103-110	col. (15) ≥ col. (8)
130	1	11	„	9 16		72-79 111-118	col. (16) ≥ col. (9)
131	1	11	„	4 6		44-46 48-55	If number purchased > 0 then value > 0 Vice versa, where number purchased is applicable
132	1	11	„	10 12		80-82 84-91	If number purchased > 0 then value > 0 Vice versa, where number purchased is applicable
133	1	11	„	14 15		100-102 103-110	If number purchased > 0 then value > 0 Vice versa, where number purchased is applicable
134	1	11	„	4 6	09	44-46 48-55	If col.(5)=2, P falls within the price range given in Annexure I [P= Value/ no. (for no. >0)]

Error code	Sch. type	reference to schedule			level	Byte position	Scrutiny point
		block	item	coln			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
135	1	11	„	4 6	09	44-46 48-55	If col.(5)=1, P will be less than the upper price limit given in <u>Annexure I</u> [P= Value/ no. (for no. >0)]
136	1	11	Each	10 12	09	80-82 84-91	If col.(5)=2, P falls within the price range given in <u>Annexure I</u> [P= Value/ no. (for no. >0)]
137	1	11	„	10 12	09	80-82 84-91	If col.(5)=1, P will be less than the upper price limit given in <u>Annexure I</u> [P= Value/ no. (for no. >0)]
138	1	11	„	7 13	09	56-63 92-99	Entry <50% of the upper limit given in given in <u>Annexure I</u> .
139	1	11	„	14 15	09	100-102 103-110	P (=Value/ no. for no. >0) is less than the upper price limit given in <u>Annexure I</u>
140	1,2	11	„	5 6	09	47 48-55	If value > 0, then hire purchase code = 1 or 2, otherwise it is blank.
141	1	11	„	11 12	09	83 84-91	If value > 0, then hire purchase code = 1 or 2, otherwise it is blank.
142	1	11	„	6 7 8 9		48-55 56-63 64-71 72-79	Columns: 6+7+8 = 9
143	1	11	„	12 13 15 16		84-91 92-99 103-110 111-118	Columns: 12+13+15 = 16
144	2	11	„	4 6		44-46 48-55	If entry in col.4 (no.) > 0, then entry in col.6 (value) > 0 and <i>vice versa</i> (unless col.4 cell is shaded).
145	2	11	„	8 9		64-66 67-74	If number purchased > 0 then value > 0 and vice versa, unless col. 8 is shaded.
146	2	11	„	4 6		44-46 48-55	If col.(5) =2, P = Value ÷ no. purchased, for no. > 0, falls within the price range given in <u>Annexure I</u> .
147	2	11	„	4 6		44-46 48-55	If col.(5) =1, P is less than the upper price limit given in <u>Annexure I</u> .
148	2	11	„	8 9		64-66 67-74	P = Value ÷ no. purchased, for no. > 0, is less than the upper price limit given in <u>Annexure I</u> .
149	2	11	„	7		56-63	Entry <50% of the upper limit given in given in <u>Annexure I</u> .
150	2	11	„	6 7 9 10		48-55 56-63 67-74 75-82	Columns: 6+7+9 = col.10
151	2	11	„	10		75-82	Entry < the upper limit given in <u>Annexure III</u>
152	2	11	Except 639	7	09	56-63	Entry < 50% of the upper limit given in <u>Annexure III</u>
153	1	5.1 to 6		6	05	69-76	Entry ÷ hh size < the limit given in <u>Annexure II</u> for s.t. items, 170, (171+172+173+174+175), 280 & (279+289+299)
154	1	7 & 8	Sub-totals	4 6	06	52-59 69-76	Entry ÷ hh size < the limit given in <u>Annexure II</u>

Error code	Sch. type	reference to schedule			level	Byte position	Scrutiny point
		block	item	coln			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
155	1	9	„	3	07	43-50	Entry < the upper limit given in <u>Annexure III</u>
156	1	9	„	4	07	51-58	
157	1	10		3	08	43-50	Entry < the upper limit given in <u>Annexure III</u>
158	2	5.1 to 6		6	05	69-76	Entry ÷ hh size < the limit given in <u>Annexure II</u> for s.t. items, 170, (171+172+173+174+175), 280 & (279+289+299)
159	2	7 & 8	Sub-totals	4	06	52-59	Entry ÷ hh size < the limit given in <u>Annexure II</u>
160	2	9 & 10	„	3	07 08	43-50	Entry < the upper limit given in <u>Annexure III</u>
161	1	11		9	09	72-79	Entry < the upper limit given in <u>Annexure III</u>
162	1	11		16	09	111-118	Entry < the upper limit given in <u>Annexure III</u>
163	1	11	Except 639	7 13	09	56-63 92-99	Entry < 50% of the upper limit given in <u>Annexure III</u>
164	1,2	13	1	-	10	43	Entry = 1 or 2
165	1,2	13	2, 3	-	10	44, 45	If item 1 entry = 1, then (i) item 2 entry = blank and (ii) item 3 entry = 1-4 or 9
166	1,2	13	2, 3	-	10	44, 45	If item 1 entry = 2, then (i) item 2 entry = 1-6 or 9, and (ii) item 3 entry = blank
167	1,2	13	1 4.1 4.2 4.3	-	10	43 46 47 48	1. Entry = 1 or 2, if item 1 entry = 1 2. All 3 entries should be blank if item 1 entry = 2
168	1,2	13	1 4.1 4.2 4.3	-	10	43 46 47 48	If item 1 entry = 1, then at least one of the entries in items 4.1 to 4.3 should be 1.
169	1,2	13	5 4.1	-	10	49 46	Entry = 1-5, if item 4.1 entry = 1 = blank , otherwise
170	1,2	13	6 4.2	-	10	50 47	Entry = 1-3 or 9, if item 4.2 entry = 1 = blank , otherwise
171	1,2	13	7 1	-	10	51 43	Entry = 1-4, if item 1 entry = 1 = blank , if item 1 entry = 2
172	1,2	13	7 8 9.1 9.2	-	10	51 52 53 54	Entry in item 8/ 9.1/ 9.2 = 1-4 If item 7 entry = 1, 2 or 3 = blank , otherwise
173	1,2	13	10.1 4.1	-	10	55 46	Entry = 1-6, if item 4.1 entry = 1 = blank , otherwise
174	1,2	13	10.2 4.2	-	10	56 47	Entry = 1-6, if item 4.2 entry = 1 = blank , otherwise
175	1,2	13	10.3 4.3	-	10	57 48	Entry = 1-6, if item 4.3 entry = 1 = blank , otherwise

Ph-II Validation (Coverage Check)

Coverage checking is done to ensure complete coverage of all schedules surveyed as per the sample list. Under this stage-

- (a) Coverage of data vis-a-vis the directory file (Sch. 0.0, Block-6), in respect of each FSU and SSU are checked.
- (b) Duplication of FSU or SSU is also checked.

Scheme of operation

The programme for coverage check of NSS 68th round is DIRMCH68.exe. For running this programme, the Ph-I validated VB-DAT files are to be converted into **text files** using shell68 shell programme. Next, schedule-wise text data will be sorted by TABSORT program with the appropriate sorting keys for a particular schedule. Then DIRMCH68.exe is to be run separately for each schedule against directory file (i.e., Schedule 0.0).

This will generate print files with **.p** extension. These output print files should be renamed according to the Schedule name. The error print out of the Coverage check program is self explanatory. Unlike the Ph-I validation, coverage check programme should be run on sufficiently large number of FSUs, preferably for a sub round of a sector.

After coverage clear the “O.K.” button will posted in Schedule 0.0.

Ph-III Validation (Howler Check)

Howler checks are basically range checks meant for detecting the abnormally high or low values in the data. These programmes attempt to shape the data within some predetermined limits fixed on the basis of experience of previous rounds as well as through scrutiny of the current round data after Phase -I validation.

Scheme of operation.

Execution of howler checking programme and generation of error list using SHELL programme viz., shellh68 is exactly same as that of Ph - I Validation. Therefore, all the steps mentioned in Ph - I validation will be followed with the programmes and supporting files supplied for Ph - III validation.