# Note on Sample Design and Estimation Procedure of NSS 73rd 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 seventy third round from 1st July 2015. The survey continued up to 30th June 2016.

## 2 Outline of Survey Programme

2.1 **Subject Coverage**: The coverage of NSS 73rd round (July 2015 ï June 2016) was unincorporated non-agricultural enterprises belonging to Manufacturing, Trade and Other Services (excluding construction).

The survey covered the following broad categories:

(a) Manufacturing enterprises excluding those registered under Sections 2m(i) and 2m(ii) of the Factories Act, 1948

(b) Manufacturing enterprises registered under Section 85 of Factories Act, 1948

(c) Enterprises engaged in cotton ginning, cleaning and baling (code 01632 of NIC- 2008) excluding those registered under Factories Act, 1948

(d) Enterprises manufacturing beedi and cigar excluding those registered under beedi and cigar workers (conditions of employment) Act, 1966

(e) Non-captive electric power generation, transmission and distribution by units not registered with the Central Electricity Authority (CEA)

(f) Trading enterprises

(g) Other Service sector enterprises (excluding construction)

Categories of enterprises under coverage in (a) to (g) above were:

(a) Proprietary and partnership enterprises [excluding Limited Liability Partnership (LLP) enterprises]

(b) Trusts, Self-Help Groups (SHGs), Non-Profit Institutions (NPIs), etc.

Following enterprises were excluded from the coverage:

(a) Enterprises which were incorporated i.e. registered under Companies Act, 1956

(b) The electricity units registered with the Central Electricity Authority (CEA)

(c) Government and public sector enterprises

(d) Cooperatives

[All acts were subject to subsequent amendments, if any]
Coverage of the survey in terms of NIC ï 2008 codes (considering the corrigendum as issued on 3rd May, 2011) was as follows:

| A. **NIC 2008 codes under coverage of the survey** | |
|---|---|
| Division/ Group | Description |
| | **Manufacturing** |
| 10 | Manufacture of Food Products |
| 11 | Manufacture of Beverages |
| 12 | Manufacture of Tobacco Products |
| 13 | Manufacture of Textiles |
| 14 | Manufacture of Wearing Apparel |
| 15 | Manufacture of Leather and Related Products |
| 16 | Manufacture of Wood and Products of Wood and Cork, except Furniture; Manufacture of Articles of Straw and Plaiting Materials |
| 17 | Manufacture of Paper and Paper Products |
| 18 | Printing and Reproduction of Recorded Media |
| 19 | Manufacture of Coke and Refined Petroleum Products |
| 20 | Manufacture of Chemicals and Chemical Products |
| 21 | Manufacture of Pharmaceuticals, Medicinal Chemical and Botanical Products |
| 22 | Manufacture of Rubber and Plastics Products |
| 23 | Manufacture of other non-metallic Mineral Products |
| 24 | Manufacture of Basic Metals |
| 25 | Manufacture of Fabricated Metal Products, except Machinery and Equipment |
| 26 | Manufacture of Computer, Electronic and Optical Products |
| 27 | Manufacture of Electrical Equipment |
| 28 | Manufacture of Machinery and Equipment n.e.c. |
| 29 | Manufacture of Motor Vehicles, Trailers and Semi-Trailers |
| 30 | Manufacture of Other Transport Equipment |
| 31 | Manufacture of Furniture |
| 32 | Other Manufacturing |
| 33 | Repair and Installation of Machinery and Equipment |
| 3510 | Electric power generation, transmission and distribution (except 35101, 35102, 35104) |

| A. **NIC 2008 codes under coverage of the survey** | |
|---|---|
| Division/ Group | Description |
| 01632 | Cotton Ginning, Cleaning and Bailing |
| | **Trading** |
| 45 | Wholesale and Retail Trade and Repair of Motor Vehicles and Motorcycles |
| 46 | Wholesale Trade, except of Motor Vehicles and Motorcycles |
| 47 | Retail Trade, except of Motor Vehicles and Motorcycles |
| | **Other Services** |
| 37 | Sewerage |
| 38 | Waste collection, treatment and disposal activities; materials recovery |
| 39 | Remediation activities and other waste management services |
| 492 | Other Land Transport (excluding 49212, 49213) |
| 50 | Water Transport |
| 52 | Warehousing and Support Activities for Transportation |
| 53 | Postal and Courier Activities |
| 55 | Accommodation |
| 56 | Food and Beverage Service Activities |
| 58 | Publishing Activities |
| 59 | Motion Picture, Video and Television Programme Production, Sound Recording and Music Publishing Activities |
| 60 | Broadcasting and Programming Activities |
| 61 | Telecommunications |
| 62 | Computer Programming, Consultancy and Related Activities |
| 63 | Information Service Activities |
| 64193 | Special code for Chit funds |
| 643 | Trusts, Funds and Other Financial Vehicles (including special codes 64309 for self ï help groups) |
| 649 | Other Financial Service Activities Except Insurance and Pension Funding Activities (including special codes 64921 for investment club, 64929 for activities of private moneylenders) |
| 661 | Activities Auxiliary to Financial Service Activities, except Insurance and Pension Funding (excluding 6611) |
| 6621 | Risk and Damage Evaluation |
| 663 | Fund Management Activities |

| A. **NIC 2008 codes under coverage of the survey** | |
|---|---|
| Division/ Group | Description |
| 68 | Real Estate Activities |
| 69 | Legal and Accounting Activities |
| 70 | Activities of Head Offices; Management Consultancy Activities |
| 71 | Architecture and Engineering Activities; Technical testing and Analysis |
| 72 | Scientific Research and Development |
| 73 | Advertising and Market Research |
| 74 | Other Professional, Scientific and Technical Activities |
| 75 | Veterinary Activities |
| 771 | Renting and Leasing of Motor Vehicles |
| 772 | Renting and Leasing of Personal and Household Goods |
| 773 | Renting and Leasing of Other Machinery, Equipment and Tangible Goods n.e.c. |
| 78 | Employment Activities |
| 79 | Travel Agency, Tour Operator and Other Reservation Service Activities |
| 80 | Security and Investigation Activities |
| 81 | Services to Buildings and Landscape Activities |
| 82 | Office Administrative, Office Support and Other Business Support Activities |
| 85 | Education |
| 86 | Human Health Activities |
| 87 | Residential Care Activities |
| 88 | Social Work Activities Without Accommodation |
| 90 | Creative, Arts and Entertainment Activities |
| 91 | Libraries, Archives, Museums and Other Cultural Activities |
| 92 | Gambling and Betting Activities *(coverage will be restricted to legal activities only)* |
| 93 | Sports Activities and Amusement and Recreation Activities |
| 941 | Activities of Business, Employers and Professional Membership Organizations |
| 949 | Activities of Other Membership Organizations (excluding 9492 and part of 9491 relating to organization) |
| 95 | Repair of Computers and Personal and Household Goods |
| 96 | Other Personal Service Activities |

B. **NIC 2008 codes outside the coverage of the survey**

1. All codes under sections:
   A (Agriculture, forestry and fishing excluding 01632);
   B (Mining and quarrying);
   D (Electricity, gas, steam and air conditioning supply excluding 35103, 35105, 35106, 35107, 35109);
   F (Construction);
   O (Public administration and defence; compulsory social security);
   T (Activities of households as employers; undifferentiated goods and services producing activities of households for own use);
   U (Activities of extraterritorial organizations and bodies).

2. Codes: 36, 491, 49212, 49213, 493, 51, 641 (excluding special code 64193), 642, 65, 6611, 6622, 6629, 774, 942, 9491(organizations only), 9492

2.2 **Geographical coverage:** The survey covered the whole of the Indian Union.

2.3 **Period of survey and work programme:** The period of survey was of one year duration starting on 1st July 2015 and ending on 30th June 2016. The survey period of this round was divided into four sub-rounds of three monthsô duration each as follows:

| | | |
|---|---|---|
| sub-round 1 | : | July - September 2015 |
| sub-round 2 | : | October - December 2015 |
| sub-round 3 | : | January - March 2016 |
| sub-round 4 | : | April - June 2016 |

In each of these four sub-rounds equal number of sample first stage units (FSUs) i.e. villages/ blocks were allotted for survey with a view to ensuring uniform spread of sample FSUs over the entire survey period. Attempt was made to survey each of the FSUs during the sub-round to which it was allotted. *Because of the arduous field conditions, this restriction was not strictly enforced in Andaman and Nicobar Islands, Lakshadweep, Leh (Ladakh) and Kargil districts of Jammu & Kashmir and rural areas of Arunachal Pradesh and Nagaland.*

2.4 **Schedules of enquiry:** During this round, the following schedules of enquiry were to be canvassed:

Schedule 0.0 : list of households and non-agricultural enterprises

Schedule 2.34 : unincorporated non-agricultural enterprises (excluding construction )

2.5 **Participation of States:** In this round all the States and Union Territories except Andaman & Nicobar Islands, Chandigarh, Dadra & Nagar Haveli and Lakshadweep were participating. The following was the matching pattern of the participating States/UTs.

| State/UT | Extent of matching |
|---|---|
| Nagaland (U) | triple |
| Andhra Pradesh, Manipur, Telangana, Chhattisgarh | double |
| Gujarat, Maharashtra (U) | one and half |
| Remaining States/ UTs | equal |

3 **Sample Design**

3.1 **Outline of sample design:** A stratified multi-stage design was adopted for the 73rd round survey.

*Rural sector:* The first stage units (FSU) were the 2011 Population Census villages in the rural sector. For rural part of Kerala, 2011 Population Census Enumeration Blocks (EBs) were taken as FSUs.

*Urban sector:* The first stage units (FSU) were the 2011 Population Census EBs in the urban sector. For those urban areas where Sixth EC data were not used latest updated UFS (Urban Frame Survey) blocks were the FSUs.

The ultimate stage units (USU) were enterprises for both the sectors. In the case of large FSUs, one intermediate stage of sampling was the selection of three hamlet-groups (hgôs)/sub-blocks (sbôs) from each large FSU.

3.2 **Sampling frame used for selection of FSUs**

Census 2011 list of villages was used as the sampling frame for **rural areas.** Auxiliary information such as number of enterprises, number of workers, type of enterprises, activities of enterprises, etc. available from Sixth EC frame was used for stratification, sub-stratification and selection of FSUs, for those rural areas where EC data were used. For other rural areas where EC data were not used, the auxiliary information on non-agricultural workers (i.e. household industry workers + other workers) based on Primary Census Abstract (PCA) 2011 were utilized

for stratification, sub-stratification and selection of FSUs. For this purpose both main and marginal workers were considered.

In **rural areas of Kerala**, list of EBs as per Census 2011 was used as sampling frame.

EC data were used for the following 21 State/UTs in **semi-round 1** (sub-rounds 1 & 2): Andaman & Nicobar Islands, Assam, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Delhi, Goa, Haryana, Himachal Pradesh, Kerala, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Puducherry, Punjab, Rajasthan, Sikkim, Tripura and Uttarakhand. For **all urban areas** of these 21 State/UTs, list of EBs as per Census 2011 was used as sampling frame. The latest updated list of UFS blocks was the sampling frame for the urban areas of remaining 15 State/UTs where EC data were not used in semi-round 1.

The sampling frame used for **semi-round 2** (sub-rounds 3 & 4) was entirely based on Sixth EC data.

3.3 **Stratification**: Each district was treated as a stratum. Within each district of a State/UT, generally speaking, two basic strata were 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, within the urban areas of a district, if there were one or more towns with *population 1.5 million or more* as per Census 2011, each of them formed a separate basic stratum and the remaining urban areas of the district were considered as another basic stratum.

(iii) In case of rural sectors of Nagaland, one special stratum was formed within the State consisting of all the villages which were difficult to access.

3.4 **Sub-stratification**:

(i) **In rural areas of those States/UTs where EC data were used:** Three sub-strata were formed in the rural sector as follows:

Sub-stratum 1: Villages with at least 3 establishments (NDE/DE) under coverage as per Sixth EC data for the following categories:

**Table 1.1:** NIC 2008 codes for forming sub-stratum ó1ĉ

| **NIC 2008 codes** | **Description of activities** |
|---|---|
| 20, 21 | Manufacture of chemicals, chemical products, pharmaceuticals, medicinal products etc. |
| 451, 453 | Sale of motor vehicles, motor vehicles parts and accessories |
| 50 | Water transport |
| 521 | Warehousing and storage |
| 68 | Real estate activities |
| 582, 62, 631 | Computer relating services |

| **Table 1.1:** NIC 2008 codes for forming sub-stratum ó1ô | |
|---|---|
| **NIC 2008 codes** | **Description of activities** |
| 691 | Legal activities |
| 692 | Accounting, book-keeping and auditing activities; tax consultancy |
| 70, 71, 72, 73, 74, 78, 80, 81, 82 | Research development, employment activities etc. |
| 855 | Educational support services |
| 37, 381, 382, 39 | Sanitary services |
| 87, 88 | Residential care activities, social work activities without accommodation |

Sub-stratum 2: Out of the remaining, villages having at least 8 establishments (NDE/DE) under coverage in the manufacturing and services sectors as per Sixth EC data;

Sub-stratum 3: Remaining villages of the stratum.

(ii) **In rural areas of those States/UTs where EC data were used:**

If órô was the sample size allotted for a rural stratum, ór/4ô sub-strata were formed in that stratum. The villages within a stratum (district) as per frame were first arranged in ascending order of non-agricultural workers (i.e. household industry workers + other workers) as per PCA 2011. Then sub-strata 1 to ór/4ô were demarcated in such a way that each sub-stratum comprised a group of villages of the arranged frame and had more or less equal number of non-agricultural workers taken into consideration as per PCA 2011.

(iii) **In rural areas of Kerala:**

Sub-stratum 1: EBs with at least 3 establishments (NDE/DE) under coverage as per Sixth EC data as mentioned in Table 1.1;

Sub-stratum 2: Out of the remaining, EBs having at least 8 establishments (NDE/DE) under coverage in the manufacturing and services sectors as per Sixth EC data;

Sub-stratum 3: Remaining EBs of the stratum.

(iv) **In urban areas of those States/UTs (except 1.5 million plus cities) where EC data was used:** Three sub-strata were formed in these areas as follows:

Sub-stratum 1: EBs with at least 3 establishments (NDE/DE) under coverage as per Sixth EC data and establishments mentioned in Table 1.1;

Sub-stratum 2: Out of the remaining, EBs having at least 8 establishments (NDE/DE) under coverage in the manufacturing and services sectors as per Sixth EC data;

Sub-stratum 3: Remaining EBs of the stratum.

(v) **Urban - 1.5 million plus cities where EC data was used:**

In each such stratum, **14 sub-strata** were formed as under:

**Table 1.2:** Coverage in terms of NIC 2008 codes for forming sub-strata in 1.5 million plus cities

| sub-stratum number | Description | Coverage in terms of NIC 2008 codes |
|---|---|---|
| 1 | EBs with one or more establishment in warehousing and storage | 521 |
| 2 | Out of the remaining, EBs with one or more establishment in accommodation, event catering and other food service activities | 55 , 562 |
| 3 | Out of the remaining, EBs with one or more establishment in real estate, legal, accounting, management consultancy, professional, scientific and technical etc. | 681, 69, 70, 71, 72, 73, 74, 78, 80, 81, 82 |
| 4 | Out of the remaining, EBs with one or more establishment in manufacture of non-metallic products, basic metals, recycling, fabricated metal products etc. | 23, 24, 25, 331 |
| 5 | Out of the remaining, EBs with one or more establishment in manufacture of food products and beverages | 101, 102, 103, 104, 105, 107, 11 |
| 6 | Out of the remaining, EBs with one or more establishment in manufacture of textiles, wearing apparel, leather and related products | 13, 14, 15 |
| 7 | Out of the remaining, EBs with one or more establishment in manufacture of wood and wood products, furniture, paper and paper products, printing, publishing of books, periodicals etc. | 16, 17, 18, 31 |
| 8 | Out of the remaining, EBs with one or more establishment in sale of motor vehicles and wholesale trade, except of motor vehicles and motorcycles | 451, 46 |
| 9 | Out of the remaining, EBs with one or more establishment in transport, supporting and auxiliary transport activities, travel agency, tour operators, financial service and insurance activities, postal, courier, software publishing, | 492, 50, 522, 53, 582, 61, 62, 63, 643, 649, 661, 662, 663, 79 |

**Table 1.2:** Coverage in terms of NIC 2008 codes for forming sub-strata in 1.5 million plus cities

| sub-stratum number | Description | Coverage in terms of NIC 2008 codes |
|---|---|---|
| | information service and communication etc. | |
| 10 | Out of the remaining, EBs with one or more establishment in veterinary, human health, residential care, social work activities and membership organizations | 75, 86, 87, 88, 941, 949 |
| 11 | Out of the remaining, EBs with one or more establishment in education | 85 |
| 12 | Out of the remaining, EBs with one or more establishment in remaining manufacturing activities | 016, 106, 108, 12, 19, 20, 21, 22, 26, 27, 28, 29, 30, 32, 332, 351 |
| 13 | Out of the remaining, EBs with one or more establishment in remaining other services activities | 37, 38, 39, 561, 563, 581, 59, 60, 639, 682, 771, 772, 773, 90, 91, 92, 93, 95, 96 |
| 14 | all the remaining EBs of the stratum | |

**Note:** *In Delhi (urban), three EBs were found to have large number of enterprises (and so workers). To avoid repetition of these EBs in the sample lists in different semi-rounds for each sub-sample, these three EBs were covered in each sub-sample of each semi-round considering each of them as a separate sub-stratum (15, 16 and 17).*

(vi) **In urban areas of those States/UTs where EC data were not used:**

For each stratum, there were two sub-strata based on the information as available from the latest available UFS blocks as follows:

sub-stratum 1: UFS blocks identified as Bazaar area (BA)/ Industrial area (IA)/ Hospital area (HA)/ Slum area (SA) which were likely to contain relatively higher number of enterprises

sub-stratum 2: remaining UFS blocks of the stratum

If the number of FSUs in the frame of a rural or urban sub-stratum was found to be less than 12, then separate sub-stratum were not formed and it was merged with the adjacent sub-stratum.

3.5 **Total sample size (FSUs):** 16348 FSUs were allocated for the central sample at all-India level. State wise allocation of sample FSUs is given in Table 1.

3.6 **Allocation of total sample to States and UTs:** All-India sample size (FSUs) was allocated to different State/UTs in proportion to total number of non-agricultural workers under coverage as per Fifth EC keeping in view the total allocation.

3.7 **Allocation of State/UT level sample to rural and urban sectors:** State/UT sample sizes were allocated to rural and urban sectors of the State/UT in proportion to number of non-agricultural workers under coverage as per Sixth EC for the States/UTs where EC data were used for frame preparation. For those States/UTs where EC data were not used, sample sizes were allocated to rural and urban sectors of the State/UT in proportion to non-agricultural workers (i.e. household industry workers + other workers) as per PCA 2011 within the State/UT. A minimum of 8 FSUs (minimum 4 each for rural and urban sector separately) were allocated to each State/UT.

3.8 **Allocation to strata:** Stratum allocations of State/UT for each sector were made in proportion to number of non-agricultural workers under coverage as per Sixth EC or in proportion to non-agricultural workers (i.e. household industry workers + other workers) as per PCA 2011 as suitable for the case. Stratum level allocation was adjusted to multiples of 4 with a minimum sample size of 4.

For special stratum formed in rural areas of Nagaland as discussed in para 3.3 (iii) 12 FSUs were allocated.

3.9 **Allocation to sub-strata:** Allocation to sub-strata was made in proportion to:

(a) number of non-agricultural workers under coverage as per Sixth EC in both rural and urban areas for EC based frame,
(b) non-agricultural workers (i.e. household industry workers + other workers) as per PCA 2011 for PCA based frame,
(c) number of UFS blocks with double weightage to ósub-stratum 1ô, wherever possible, when UFS blocks were used as sampling frame.

Minimum allocation for a sub-stratum had, in principle, been decided as 4 to control seasonal fluctuation.

3.10 **Sampling of FSUs:** Sampling of the First Stage Units was done separately in two phases ï for first six months (July ï December, 2015, 1st and 2nd sub-rounds) and next six months (January ï June, 2016, 3rd & 4th sub-rounds). Samples were drawn in the form of two independent sub-samples in each phase for each sector ensuring stratum/sub-stratum allocation multiple of 2 (i.e. half of stratum/sub-stratum allocation which was multiple of 4). In the first phase, EC data were used for preparation of sampling frame for those States, for which data were available and for the remaining States, usual procedure of PCA based frame and UFS based

frame had been used. For drawing of samples for 3rd and 4th sub-rounds only EC based sampling frame was used for all States/UTs.

3.11 **Selection of FSUs:**

**For both rural and urban sectors for EC based frame:** From each stratum/sub-stratum, required number of sample FSUs was selected by Probability Proportional to Size With Replacement (PPSWR), size being the total number of non-agricultural workers under coverage in the village/EB as per Sixth EC.

**For rural sectors using PCA based frame:** In rural areas, from each stratum/sub-stratum, FSUs were selected by PPSWR with size as non-agricultural workers (i.e. household industry workers + other workers) as per PCA 2011. For this purpose both main and marginal workers were considered.

**For urban sectors using UFS frame:** In urban areas, from each stratum/sub-stratum, FSUs were selected by SRSWOR scheme.

Both rural and urban samples were drawn in the form of two independent sub-samples in each phase of six months and equal number of samples were allocated among the two sub-rounds of each phase.

3.12 **Formation of segment 9 and selection of hamlet-groups/ sub-blocks**

3.12.1 **Formation of Segment 9:** Having determined the boundaries of the sample FSU, all non-agricultural enterprises having 20 or more workers in the entire FSU and having operated at least one day during last 365 days preceding the day of survey (hereinafter to be called as ôbig enterprisesô) were listed and all the *eligible units under coverage* were surveyed. All the listed big units (whether under coverage or not) constituted segment 9. All *eligible enterprises under coverage* were surveyed in segment 9.

3.12.2 **Criterion for hamlet-group/sub-block formation:** Having constituted segment 9 as stated above, it was determined whether listing was to be done in the whole sample FSU or not. For this, approximate present population (P) and approximate total number of non-agricultural enterprises (E) for the whole FSU were ascertained first from knowledgeable persons. Depending upon the values of ôPô and ôEô, it was divided into a suitable number (say, $D_P$ and $D_E$) of óhamlet-groupsô in the rural sector (except Kerala) and ósub-blocksô in the urban sector and rural sector of Kerala as stated below. Final value of ôDô was the higher of the two values ô$D_P$ô and ô$D_E$ô based on the dual criteria.

| Population/enterprise dual criteria |
|---|

| population (P) | no. of hgôs/ sbôs formed ($D_P$) | no. of non-agricultural enterprises (E) | no. of hgôs/ sbôs formed ($D_E$) |
|---|---|---|---|
| less than 1200 | 1 | less than 120 | 1 |
| 1200 - 1599 | 4 | 120 - 159 | 4 |
| 1600 - 1999 | 5 | 160 - 199 | 5 |
| 2000 - 2399 | 6 | 200 - 239 | 6 |
| and so on | é | and so on | é |

While considering enterprise criteria, segment 9 enterprises, if any, was excluded from the count of óEô.

For rural areas of Himachal Pradesh, Sikkim, Andaman & Nicobar Islands, Uttarakhand (except four districts Dehradun, Nainital, Hardwar and Udham Singh Nagar), Punch, Rajouri, Udhampur, Reasi, Doda, Kishtwar, Ramban, Leh (Ladakh), Kargil districts of Jammu and Kashmir and Idukki district of Kerala, the number of hamlet-groups/sub-blocks was formed as follows:

| Population/enterprise dual criteria | | | |
|---|---|---|---|
| population (P) | no. of hgôs/ sbôs formed ($D_P$) | no. of non-agricultural enterprises (E) | no. of hgôs/ sbôs formed ($D_E$) |
| less than 600 | 1 | less than 120 | 1 |
| 600 - 799 | 4 | 120 - 159 | 4 |
| 800 - 999 | 5 | 160 - 199 | 5 |
| 1000 - 1199 | 6 | 200 - 239 | 6 |
| and so on | é | and so on | é |

3.12.3 **Formation and selection of hamlet-groups/sub-blocks:**

In case hamlet-group/sub-block was formed in the FSU, the same should be done either by more or less equalising population or by equalising number of non-agricultural enterprises. If the criterion for deciding the value of óDô was population, then hg/sb was formed by equalising population. On the other hand, if enterprise criterion was used for deciding óDô, then the number of non-agricultural enterprises was equalised to form óDô number of hg/sb. If the value of óDô was same for both population and enterprise criteria, then hg/sb was formed by equalising population.

3.12.4 **Segments 1 & 2**: Two segments (in addition to segment 9 already formed) were selected from a large FSU wherever hamlet-groups/sub-blocks were formed in the following manner ï

Segment 1 was the hg/sb having maximum number of establishments under the coverage. Two more hgôs/sbôs were selected from the remaining hgôs/sbôs of the sample FSU with equal probability following the method of SRSWOR and combined to form Segment 2.

Listing and selection of the enterprises were done independently in the two selected segments. The FSUs without hg/sb formation were treated as sample segment number 1.

3.13 **Formation of Second Stage Strata and allocation of enterprises for schedule 2.34:**

Sixteen (16) second-stage strata (SSS) were formed within each sample FSU. Composition of various SSS was as under:

(i) 3 SSS considering various broad manufacturing groups was formed in each segment for **Manufacturing sector Establishments**: **SSS 1** ï Food products and beverages, **SSS 2** ï Cotton ginning, cleaning and bailing, textiles, wearing apparel, leather and leather products, wood and wood products, furniture, paper and paper products, printing, etc., **SSS 3** ï Grain mill products, prepared animal feeds, tobacco, petroleum, chemical and chemical products, pharmaceuticals, rubber, plastic, motor vehicle, transport equipments, electric power generation and other manufacturing activities.

(ii) 3 SSS was formed in each segment for **Trade sector Establishments**: **SSS 4 –** Wholesale and retail trade and repair of motor vehicles and motorcycles, **SSS 5** ï Other wholesale trade, **SSS 6** ï Other retail trade.

(iii) 7 SSS was formed in each segment for **Service sector Establishments (other than trade)** corresponding to the following broad activities: **SSS 7** ï Accommodation, Event catering and other food service activities, **SSS 8** ï Transport, supporting and auxiliary transport activities, travel agency, tour operators etc., **SSS 9** ï Financial service and insurance activities etc., **SSS 10** ï Postal, courier, software publishing, information service and communication, **SSS 11** ï Education, **SSS 12** ï Veterinary, human health, residential care, social work activities and membership organizations, and **SSS 13** ï Other services activities.

(iv) 3 SSS was formed in each segment for own account enterprises (**OAEs)** as follows: **SSS 14** ï OAEs in Manufacturing, **SSS 15** ï OAEs in Trade, and **SSS 16** ï OAEs in Other services.

| SSS number | NIC 2008 codes | Description of major activities |
|---|---|---|
| **Establishments** | | |
| **Manufacturing** | | |
| 1 | 101, 102, 103, 104, 105, 107, 11 | Food products and beverages |

| SSS number | NIC 2008 codes | Description of major activities |
|---|---|---|
| 2 | 01632, 13, 14, 15, 16, 17, 18, 31 | Cotton ginning, cleaning and bailing, textiles, wearing apparel, leather and leather products, wood and wood products, furniture, paper and paper products, printing, etc. |
| 3 | 106, 108, 12, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32, 33, 35103, 35105, 35106, 35107, 35109 | Grain mill products, prepared animal feeds, tobacco, petroleum, chemical and chemical products, pharmaceuticals, rubber, plastic, motor vehicle, transport equipments, electric power generation and other manufacturing activities |
| **Trade** | | |
| 4 | 45 | Wholesale and retail trade and repair of motor vehicles and motorcycles |
| 5 | 46 | Other wholesale trade |
| 6 | 47 | Other retail trade |
| **Other services** | | |
| 7 | 55 , 562 | Accommodation, event catering and other food service activities |
| 8 | 49211, 49219, 4922, 4923, 50, 52, 79 | Transport, supporting and auxiliary transport activities, travel agency, tour operators etc. |
| 9 | 64193 (chit funds), 643, 64309 (SHG), 6491, 6492, 64921 (investment club), 64929 (activity of private moneylenders), 6499, 6612, 6619, 6621, 663 | Financial service activities, except insurance and pension funding and other financial activities |
| 10 | 53, 58 - 62, 631, 639, 681, 69, 70, 71, 72, 73, 74, 771, 772, 773, 78, 80, 81, 82, 9511 | Postal, courier, software publishing, information service and communication |
| 11 | 85 | Education |
| 12 | 75, 86, 87, 88, 941, 9491 (organizations), 9499 | Veterinary, human health, residential care, social work activities and membership organizations |
| 13 | 37, 38, 39, 561, 563, 682, 90, 91, 92, 93, 9512, 952, 96 | Other services activities |
| **OAEs** | | |

| SSS number | NIC 2008 codes | Description of major activities |
|---|---|---|
| 14 | 01632, 10ï 33, 35103, 35105, 35106, 35107, 35109 | Manufacturing |
| 15 | 45, 46, 47 | Trade |
| 16 | 37 ï 39, 49211, 49219, 4922, 4923, 50, 52 ï 63, 64193, 643, 64309, 6491, 64920, 64921, 64929, 6499, 6612, 6619, 6621, 663, 68, 69, 70 ï 75, 771, 772, 773,78 ï 82, 85 ï 93, 941, 949, 95, 96 | Other services |

3.14 **Selection of enterprises**

3.14.1 The **number of enterprises selected** for survey (excluding segment 9) from each FSU × segment × SSS was as given below:

| enterprise type | sector | SSS number | number of enterprises surveyed | |
|---|---|---|---|---|
| | | | without hg/sb formation | with hg/sb formation (for each segment) |
| establishments | manufacturing | 1 | 2 | 1 |
| | | 2 | 2 | 1 |
| | | 3 | 2 | 1 |
| | | **sub-total** | **6** | **3** |
| | trade | 4 | 2 | 1 |
| | | 5 | 2 | 1 |
| | | 6 | 2 | 1 |
| | | **sub-total** | **6** | **3** |
| | services | 7 | 2 | 1 |
| | | 8 | 2 | 1 |
| | | 9 | 2 | 1 |
| | | 10 | 2 | 1 |
| | | 11 | 2 | 1 |
| | | 12 | 2 | 1 |
| | | 13 | 2 | 1 |
| | | **sub-total** | **14** | **7** |
| OAEs | manufacturing trade services | 14 | 2 | 1 |
| | | 15 | 2 | 1 |
| | | 16 | 2 | 1 |
| | | **sub-total** | **6** | **3** |

**It may be noted that from each segment × SSS, at least one enterprise must be surveyed if there were some enterprises in the corresponding frame. In other words, as per the notations used in Blocks 5a and 5b of Schedule 0.0, e > 0 if E > 0 for each FSU × segment × SSS**.

3.14.2 In addition to the above, **all the eligible enterprises of segment 9 were surveyed**.

3.14.3 **Selection of Enterprises**: Sample enterprises from each SSS were selected by SRSWOR.

However, **all the establishments in the frame were selected** for a broad category of establishments (manufacturing/trade/other services) in the following situations:

(i) All the manufacturing establishments if total number of establishments in manufacturing SSSs was less than or equal to 6 considering both the segments 1 & 2

(ii) All the trading establishments if total number of establishments in trading SSSs was less than or equal to 6 considering both the segments 1 & 2

(iii) All the ‘other service sector’ establishments if total number of establishments in other services SSSs was less than or equal to 14 considering both the segments 1 & 2.

## 4. **Estimation Procedure**

### 4.1 **Notations:**

s = subscript for s-th stratum

t = subscript for t-th sub-stratum

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

r = subscript for semi-round (r = 1, 2)

i = subscript for i-th FSU [village/ block/ EB]

d = subscript for a segment (d = 1, 2, 9)

j = subscript for j-th second stage stratum in an FSU/ segment (j=1, 2, 3 ....., 16)

k = subscript for k-th sample enterprise under a particular second stage stratum within an FSU/ segment

D = total number of hgôs/ sbôs formed in the sample FSU

D* = 0 if D = 1

= (D ï 1)/2 for FSUs with D > 1

N = total number of FSUs in any urban sub-stratum (for States where UFS based frame was used)

Z = total size of a rural/urban sub-stratum (= sum of sizes of all villages/EBs of a sub-stratum)

z = size of sample village/EB used for selection.

n = number of sample FSUs surveyed including óuninhabitatedô and ózero casesô but excluding casualty for a particular sub-sample and sub-stratum.

E = total number of enterprises listed in a second-stage stratum of an FSU / segment of sample FSU

e = number of enterprises surveyed in a second-stage stratum of an FSU / segment of sample FSU

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

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

Under the above symbols,

$Y_{rstmidjk}$ = observed value of the characteristic y for the k-th enterprise in the j-th second stage stratum of the d-th segment (d = 1, 2, 9) of the i-th FSU belonging to the m-th sub-sample for the t-th sub-stratum of s-th stratum of the r-th semi-round.

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

4.2 **Formulae for Estimation of Aggregates for a particular sub-sample and stratum × sub-stratum of a semi-round:**

4.2.1 **Schedule 0.0:**

4.2.1.1 **Rural:**

(i) For estimating the number of enterprises in a stratum × sub-stratum possessing a characteristic:

$$\hat{Y} = \frac{Z}{n}\sum_{i=1}^{n}\frac{1}{z_i}\left[y_{i9} + y_{i1} + D_i^* \times y_{i2}\right]$$

where $y_{i9}$ , $y_{i1}$ , $y_{i2}$ were the total number of enterprises possessing the characteristic *y* in segments 9, 1 & 2 of the i-th FSU respectively.

4.2.1.2 **Urban:**

(a) States/UTs where EC based frame was used:

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

$$\hat{Y} = \frac{Z}{n}\sum_{i=1}^{n}\frac{1}{z_i}\left[y_{i9} + y_{i1} + D_i^* \times y_{i2}\right]$$

where $y_{i9}$, $y_{i1}$, $y_{i2}$ were the total number of enterprises possessing the characteristic *y* in segments 9, 1 & 2 of the i-th FSU respectively.

(b) States where UFS based frame was used:

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

$$\hat{Y} = \frac{N}{n}\sum_{i=1}^{n}\left[y_{i9} + y_{i1} + D_i^* \times y_{i2}\right]$$

where $y_{i9}$ , $y_{i1}$ , $y_{i2}$ were the total number of enterprises possessing the characteristic *y* in segments 9, 1 & 2 of the i-th FSU respectively.

4.2.2 **Schedule 2.34:**

4.2.2.1 **Rural**:

(a) Estimation formula for a sub-stratum:

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

$$\hat{Y}_j = \frac{Z}{n_j}\sum_{i=1}^{n_j}\frac{1}{z_i}\left[\sum_{k=1}^{e_{i9j}} y_{i9jk} + \frac{E_{i1j}}{e_{i1j}}\sum_{k=1}^{e_{i1j}} y_{i1jk} + D_i^* \times \frac{E_{i2j}}{e_{i2j}}\sum_{k=1}^{e_{i2j}} y_{i2jk}\right]$$

(ii) For all selected enterprises:

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

4.2.2.2 **Urban**:

(a) Estimation formula for a sub-stratum of a State/UT where EC based frame was used:

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

$$\hat{Y}_j = \frac{Z}{n_j}\sum_{i=1}^{n_j}\frac{1}{z_i}\left[\sum_{k=1}^{e_{i9j}} y_{i9jk} + \frac{E_{i1j}}{e_{i1j}}\sum_{k=1}^{e_{i1j}} y_{i1jk} + D_i^* \times \frac{E_{i2j}}{e_{i2j}}\sum_{k=1}^{e_{i2j}} y_{i2jk}\right]$$

(ii) For all selected enterprises:

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

(b) Estimation formula for a sub-stratum of a State/UT where UFS based frame was used:

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

$$\hat{Y}_j = \frac{N}{n_j}\sum_{i=1}^{n_j}\left[\sum_{k=1}^{e_{i9j}} y_{i9jk} + \frac{E_{i1j}}{e_{i1j}}\sum_{k=1}^{e_{i1j}} y_{i1jk} + D_i^* \times \frac{E_{i2j}}{e_{i2j}}\sum_{k=1}^{e_{i2j}} y_{i2jk}\right]$$

(ii) For all selected enterprises:

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

**Note**: For segment 9, an adjustment may be necessary if E Í e for a second-stage stratum due to casualty at the detailed enquiry stage. In that case, contribution of segment 9 (i.e. $\sum_{k=1}^{e_{i9j}} y_{i9jk}$ ) in the above formulae may be replaced by $\frac{E_{i9j}}{e_{i9j}} \sum_{k=1}^{e_{i9j}} y_{i9jk}$ , where $E_{i9j}$ = (number of enterprises in the frame of of segment 9 for j-th SSS of i-th FSU as per column (4) of Block 6a of Schedule 0.0) and $e_{i9j}$ = (number of enterprises actually surveyed for segment 9 of j-th SSS of i-th FSU as per column (8) of Block 6a of Schedule 0.0)

$E_{i9j} = e_{i9j}$ , if there was no casualty.

4.2.3 **Estimate for a stratum for a semi-round**:

$$\hat{Y}_s = \sum_t \hat{Y}_{st}$$

4.3 **Overall Estimate for Aggregates for a semi-round**:

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

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

4.4 **Overall Estimate of Aggregates at State/UT/all-India level for a particular semi-round**:

The overall estimate $\hat{Y}$ at the State/ UT/ all-India level for a particular semi-round was obtained by summing the stratum estimates $\hat{Y}_s$ over all strata belonging to the State/ UT/ all-India of that semi-round.

4.5 **Estimates of Ratios of a semi-round**:

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

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

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

4.6.1 **For aggregate** $\hat{Y}$:

$Var(\hat{Y}) = \sum_s \sum_t Var(\hat{Y}_{st})$ where $Var(\hat{Y}_{st})$ was given by

$Var(\hat{Y}_{st}) = \frac{1}{4}(\hat{Y}_{st1} - \hat{Y}_{st2})^2$ where $\hat{Y}_{st1}$ and $\hat{Y}_{st2}$ were the estimates for sub-sample 1 and sub-sample 2 of a particular semi-round respectively for stratum 's' and sub-stratum 't'.

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

$$MSE(\hat{R}) = \frac{1}{4\hat{X}^2} \sum_s \sum_t \left[ (\hat{Y}_{st1} - \hat{Y}_{st2})^2 + \hat{R}^2 (\hat{X}_{st1} - \hat{X}_{st2})^2 - 2\hat{R}(\hat{Y}_{st1} - \hat{Y}_{st2})(\hat{X}_{st1} - \hat{X}_{st2}) \right]$$

4.6.3 **Estimates of Relative Standard Error (RSE)**:

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

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

4.7 **Multipliers**:

The formulae for multipliers at stratum/sub-stratum/second-stage stratum level for a sub-sample and schedule type were given below:

| sector | sub-stratum | formula for multipliers | | |
|---|---|---|---|---|
| | | segment 9 | segment 1 | segment 2 |
| **Schedule 0.0** | | | | |
| rural | all | $\frac{Z_{st}}{n_{stm}} \times \frac{1}{z_{stmi}}$ | $\frac{Z_{st}}{n_{stm}} \times \frac{1}{z_{stmi}}$ | $\frac{Z_{st}}{n_{stm}} \times \frac{1}{z_{stmi}} \times D^*_{stmi}$ |
| urban | for States/UTs with EC based frame | $\frac{Z_{st}}{n_{stm}} \times \frac{1}{z_{stmi}}$ | $\frac{Z_{st}}{n_{stm}} \times \frac{1}{z_{stmi}}$ | $\frac{Z_{st}}{n_{stm}} \times \frac{1}{z_{stmi}} \times D^*_{stmi}$ |

| sector | sub-stratum | formula for multipliers | | |
|---|---|---|---|---|
| | | segment 9 | segment 1 | segment 2 |
| | for States/UTs with UFS based frame | $\frac{N_{st}}{n_{stm}}$ | $\frac{N_{st}}{n_{stm}}$ | $\frac{N_{st}}{n_{stm}} \times D^{*}_{stmi}$ |
| **Schedule 2.34** | | | | |
| rural | all | $\frac{Z_{st}}{n_{stmj}} \times \frac{1}{z_{stmi}} \times \frac{E_{stmi9j}}{e_{stmi9j}}$ | $\frac{Z_{st}}{n_{stmj}} \times \frac{1}{z_{stmi}} \times \frac{E_{stmi1j}}{e_{stmi1j}}$ | $\frac{Z_{st}}{n_{stmj}} \times \frac{1}{z_{stmi}} \times D^{*}_{stmi} \times \frac{E_{stmi2j}}{e_{stmi2j}}$ |
| urban | for States/UTs with EC based frame | $\frac{Z_{st}}{n_{stmj}} \times \frac{1}{z_{stmi}} \times \frac{E_{stmi9j}}{e_{stmi9j}}$ | $\frac{Z_{st}}{n_{stmj}} \times \frac{1}{z_{stmi}} \times \frac{E_{stmi1j}}{e_{stmi1j}}$ | $\frac{Z_{st}}{n_{stmj}} \times \frac{1}{z_{stmi}} \times D^{*}_{stmi} \times \frac{E_{stmi2j}}{e_{stmi2j}}$ |
| | for States/UTs with UFS based frame | $\frac{N_{st}}{n_{stmj}} \times \frac{E_{stmi9j}}{e_{stmi9j}}$ | $\frac{N_{st}}{n_{stmj}} \times \frac{E_{stmi1j}}{e_{stmi1j}}$ | $\frac{N_{st}}{n_{stmj}} \times D^{*}_{stmi} \times \frac{E_{stmi2j}}{e_{stmi2j}}$ |
| | | j = 1,2,3, ....., 16 | | |

**Note:**

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

(ii) Multipliers had 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.

5. **Generation of combined estimate for the entire round:** For this survey, combined estimates for the entire round were generated by combining semi-round wise estimates at domain level by taking simple average of the estimates.

5.1 Estimates for stratum/State/UT/ all-India was arrived at by considering simple average of the estimates as derived for each of the semi-rounds 1 and 2 using formulae as mentioned in paras 4.2 to 4.4.

$\hat{Y} = \frac{\hat{Y}_1 + \hat{Y}_2}{2}$ where $\hat{Y}_1$ and $\hat{Y}_2$ were the estimates of a particular characteristic, say, y for semi-rounds 1 and 2 respectively.

5.1.1 The estimated variance of aggregate $\hat{Y}$ was given as:

$\hat{V}ar(\hat{Y}) = \frac{1}{4}(Var(\hat{Y}_1) + Var(\hat{Y}_2))$ where Var($\hat{Y}_1$) and Var($\hat{Y}_2$) were the estimates of variance of a particular characteristic, y , for semi-rounds 1 and 2 respectively.

5.1.2 **Estimates of ratios for the entire round**:

Let $\hat{R}_1$ and $\hat{R}_2$ be the estimates of $R_1$ and $R_2$ i.e. Y/X based on semi-rounds 1 and 2 respectively with corresponding estimated Mean Square Error, MSE($\hat{R}_1$) and MSE($\hat{R}_2$). The combined ratio estimate ($\hat{R}$) and estimate of variance of combined ratio estimate ($\widehat{MSE}(\hat{R})$) was obtained as:

$$\hat{R} = \frac{\hat{Y}_1 + \hat{Y}_2}{\hat{X}_1 + \hat{X}_2}$$

$$\widehat{MSE}(\hat{R}) = \frac{\hat{Var}(\hat{Y}_1) + \hat{Var}(\hat{Y}_2) - 2\hat{R}\hat{Cov}(\hat{Y}_1, \hat{X}_1) - 2\hat{R}\hat{Cov}(\hat{Y}_2, \hat{X}_2) + \hat{R}^2(\hat{Var}(\hat{X}_1) + \hat{Var}(\hat{X}_2))}{(\hat{X}_1 + \hat{X}_2)^2}$$

6. **Treatment for zero cases, casualty cases etc.**:

6.1 While counting the number of FSUs surveyed ($n_{sm}$ or $n_{stm}$) in a stratum/sub-stratum, all the FSUs with survey codes 1 to 6 in Schedule 0.0 will be considered. In addition, if no SSU was available in the frame then also that FSU will be treated as surveyed. However, if the SSUs of a particular schedule type were 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.

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

6.2.1 FSUs with survey codes 1 or 4 as per schedule 0.0 having number of enterprises in the frame of j-th second stage stratum greater than 0 but number of enterprises surveyed according to data file, considering both segments together, as nil (i.e. $E_{i1j} + E_{i2j} > 0$ but $e_{i1j} + e_{i2j} = 0$) 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 (stratum/sub-stratum) ×( second stage stratum).*

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

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

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

It may be noted that $n_{smj}$ or $n_{stmj}$ would be same for segment 1 & 2 of an FSU.

## 7. **Treatment in cases of void second-stage strata/sub-strata /strata at FSU or enterprise level**

7.1 A stratum/sub-stratum may be void because of the casualty of all the FSUs belonging to the stratum/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 stratum/sub-stratum may be replaced with the estimate as obtained from the other sub-sample for the same stratum/sub-stratum.

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

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

(i) If a rural/urban sub-stratum is void then it may be merged with the other sub-stratum of the stratum.
(ii) If a rural/urban stratum is void due to all FSUs being casualty, 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 were available and remarks to that effect may be added in appropriate places.

*Case (II): Stratum/Sub-stratum void case at second stage stratum level (i.e. all the FSUs were casualties for a particular second stage stratum*):

An FSU may be a casualty for a particular *second stage stratum* although survey code was not 7. If all the FSUs of a stratum/sub-stratum become casualties in this manner for a particular *second stage stratum*, the stratum/sub-stratum will become void. In such cases, the void second stage stratum will be merged with the nearby second stage stratum within the FSU.

8. **Reference to the values of $Z_{st}$, $n_{st}$, $n_s$, $z_{sti}$, $D_{sti}$, $D^*_{sti}$, $D_{si}$, $D^*_{si}$, $E_{sti1j}$, $e_{sti1j}$, $E_{sti2j}$, $e_{sti2j}$:**

(a) Values of $\mathbf{Z_{st}}$, $N_{st}$ and the number of FSUs allotted for the whole round are given in Appendix Tables 2A and 2B for rural sector and in Appendix Tables 3A, 3B and 3C for urban sector.

(b) Surveyed number of FSUs **($n_{st}$)** should not be taken from the tables. The value of $\mathbf{n_{stm}}$ for each sub-sample is to be obtained following the guidelines given in para 6 above. It includes uninhibited and zero cases but excludes casualty cases.

(c) The value of $\mathbf{z_{sti}}$ is to be taken from the column of sample list under the heading ósizeô or item 15 of Block 1, Sch 0.0.

(d) Value of $\mathbf{D_{sti}}$ is to be taken from item 18 of Block 1, Sch 0.0. $\mathbf{D^*_{sti}}$ is to be calculated from the value of $\mathbf{D_{sti}}$.

(e) Values of $\mathbf{E_{sti1j}}$, $\mathbf{E_{sti2j}}$ are to be taken from column (4), Block 6b of Sch 0.0 for respective segment and second-stage stratum. Values of $\mathbf{E_{sti9j}}$ from column (4), Block 6a of Sch 0.0 for segment 9 and second-stage stratum.

(f) The value of $\mathbf{e_{sti1j}}$ and $\mathbf{e_{sti2j}}$ should not be taken from column (8), Block 6b of Sch.0.0. The value of $\mathbf{e_{sti9j}}$ should not be taken from column (8), Block 6a of Sch.0.0. The figures should be obtained by counting the number of enterprises available in the data file excluding the casualty enterprises.

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