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PART-I

TECHNICAL PAPERS

Is Housing Poverty Improving in Urban India ?

-Hardeep Singh Chopra[1]

Abstract

A slum household as defined by UN-Habitat is a group of individuals living under the same roof that possesses one or more of the following five deprivations: (i) insecure tenure status, (ii) poor structural quality of dwellings, (iii) no access to safe water, (iv) no access to sanitation facilities and (v) insufficient living area. As per this definition, there were 60% slum households in urban India in 2012. However the severity of housing condition varies among these slum households with 20% ultra-poor households having two or more deprivations. In this paper, an attempt has been made to build an index to measure the intensity of housing condition of a household called as Shelter Deprivation Index (SDI). The analysis gives a higher index for SC/ST showing poorer housing conditions as compared to OBC and others. Similarly, among various religions, Buddhists and Muslims are living in more vulnerable housing conditions. Thus the index can be used to identify segments with poorer condition and help Government and other agencies in focused implementation. The index shows a slight decrease from 2008 to 2012 showing slow improvement in housing conditions over these years. With this pace, it may be difficult for India to achieve the Sustainable Development Goal of slum free country by 2030.

Keywords: slums, housing poverty, poverty, UN-Habitat, housing index, deprivations
JEL Codes: C81, I32, I38, J15, R21, R28

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1. Introduction: Need for an aggregate measure

1.1. Housing is the basic necessity of life and it is required to live a decent life. Every citizen dreams to own a house which can fulfill his basic requirements like water supply within premises, sanitation facilities and adequate living area. Governments and many other organizations are also concerned about providing housing to all its citizens and are working to fulfill this objective. Sustainable Development Goals (SDG) adopted by various countries in 2015 target to ensure access for all to adequate, safe and affordable housing and upgrade slums by 2030. Rapid growth in the urban population has created pressure on the limited resources leading to poor housing and poverty in cities. Almost every big city has developed slum areas where poor people, not able to afford a house, are living in extremely vulnerable conditions. In India, there are 13.7 million households living in slums which constitute 20% of the urban population (Registrar General of India, 2013). Further the slum population has increased by 37% during first decade (2001-11) causing concern to the authorities. These large number of people are living in kutcha houses, having low access to safe drinking water and sanitation facilities. This also leads to their poor health and low productivity. In Mumbai alone, nine million (more than 50% of the city's population) people live in slum areas with Dharavi slum having about one million residents. Similar is the condition in other major cities like Delhi (2.5 million slum population), Kolkata (two million slum populations) and Chennai (1 million slum population). UN-Habitat uses a comprehensive definition of slum covering many aspects, it defines a slum household as a group of individuals living under the same roof that possess atleast one of the following five deprivations: (i) insecure tenure status, (ii) poor structural quality of dwellings, (iii) no access to safe water, (iv) no access to sanitation facilities and (v) insufficient living area (UN-Habitat, 2006). As per this definition, 60% of the urban households in India can be categorized as slums based on the data collected by NSSO in 2012. This estimate is much higher than the estimates reported by various agencies of Government of India, due to the difference in definition[i] adopted (Government of India, 2010). In this paper we will use the definition of slum recommended by UN-Habitat.

1.2. The numbers of slum households do give the quantity but do not tell about the intensity of deprivation. Comparing all the five indicators across different regions may not lead us to decide the most improved region as one region may be better in one indicator but poor in another indicator. It thus becomes difficult to compare two regions. For example Region A has 100 Households with only one deprivation while Region B has 60 Households with all five deprivations. If we compare only number of slum Households, Region A seems poorer and needs emphasis before region B which is not a true picture. Similar is the case of comparison over time to see if the situation has improved. Thus to help in focused implementation of schemes, we need to have a mechanism to measure the intensity of deprivation. An aggregate index incorporating all shelter deprivation can be a possible solution. The index can be used to measure the shelter deprivation across different sections over time and thus help policymakers to implement schemes for the target population more efficiently.

1.3. An attempt for the same was done earlier (Patel, Koizumi, & Crooks, 2014) in which a slum severity index (SSI) was created for measuring severity in the two cities of Mumbai and Kolkata. All the five deprivations recommended by UN-Habitat slum definition, were used by the researchers giving them equal weights. Patel used National Family Health Survey (NFHS) household level data of 2005-06 to calculate the index. A deprivation score named the SSI was developed using all five indicators. The estimated slum population was about 4 times higher than the estimates given by census. However the SSI gives equal weight to all indicators giving no justification. In addition the data of National Family Health Survey (NFHS) was used to calculate the index which had a different objective and may not have adequate representation to provide estimates at city level.

1.4. In this paper attempt has been made to develop a slum index which is more efficient and representative and use it for comparing regions to take decisions based on data. Section 2 explains the methodology and describes the data used in this paper. Section 3 calculates Shelter deprivation index based on three strategies and finds out the most efficient index. Section 4 then compare states, social groups, religion using slum index and find out the more deprived ones. The index can be used by implementing agencies and Government to focus their intervention in the more vulnerable areas. Section 5 in the end gives conclusions and recommendations.

2. Data and methodology used :

2.1. Latest data published by NSSO on housing conditions is for 2012 which have been used in the survey. In addition , household level data of the Housing Condition Surveys conducted in 2002 and 2008-09 by National Sample Survey Office (NSSO), have been used for analysis the changes over time. NSSO is the nodal organization under Government of India for conducting large scale sample surveys The data has many variables related to the five indicators needed, which have been described in the appendix 2 . The five shelter deprivations as per the definition of UN-Habitat are lack of (i) security of tenure, (ii) structural quality and durability of dwellings, (iii) access to safe water, (iv)access to sanitation facilities and (v) sufficient living area. The survey data were utilised to define five shelter deprivation indicators as dummy variables (1=unimproved indicator, 0= improved indicator) and then these were utilized to define a shelter deprivation index (SDI) details for which are given at Appendix 2. Three different SDIs have been defined as weighted average of the five deprivation indicators using different sets of weights. The following options were explored for determining the weights.

2.2. Option One: Market or Exchange Value Approach (MEV): One way may be to use the expenditure needed to lift a household from a deprived category to a no deprived state, as weights. This method is described by Adam Smith as market driven. The expenditure needed on average to provide improved sanitation to a household having unimproved sanitation is used as weight for sanitation. But the data on expenditure for the five indicators was found to be

disproportionate in various Government reports. So we took the average gap in the monthly per capita expenditure (MPCE) between deprived and non-deprived household for each deprivation as a proxy for the expenditure weights, though there may be a possibility of some confounding in these weights. Difference in the median MPCE between Households having latrine within premises as compared to Households without latrine within premises is Rs 1083, which was thus taken as weight for the deprivation "lack of improved sanitation". Median was used in place of mean as it would give a better estimate due to highly skewed MPCE data. The weights obtained for each of the indicators using this method are given in table 1 below. We observe that the weight given to the indicator X_5 i.e. Security of tenure is negligible as gap in the expenditure between deprived and non-deprived households is only Rs 29. Other four deprivations are given approximately equal weightage.

Table 1: Weights for index based on MEV

Indicators (X_i)	Gap in Median Expenditure between Deprived and Non-deprived	Weights (W_i)
Structure (X_1)	907.5	0.23
Water (X_2)	900	0.23
Sanitation (X_3)	1083	0.27
Sufficient living area (X_4)	1042.5	0.26
Tenure (X_5)	29	0.01

Shelter Deprivation index 1 (SDI1) = $\sum_{i=1}^{5} WiXi$
where
Wi = Gap in the median per capita expenditure between deprived and non-deprived household for ith deprivation indicator
Xi = ith deprivation indicator

2.3. Option Two: Equal Weights (EW) Approach: In this scenario we put equal weight assuming that all the five deprivations are equally important. This is similar to the Slum severity index (Patel 2014).

Table 2: Weights for index based on equal weights

Indicators (X_i)	Weights (W_i)
Tenure	**0.2**
Sufficient living area	**0.2**
Sanitation	**0.2**
Structure	**0.2**
Water	**0.2**

Shelter Deprivation index 2 (SDI2) = $\sum_{i=1}^{5} WiXi$
where
Wi = Weight of the ith deprivation indicator = 0.20
Xi = ith deprivation indicator

2.4. Option 3: Multiple Correspondence Analysis Approach (MCA): Multiple correspondence analysis (MCA) is used for analysis of categorical variables. MCA is usually viewed as an extension of simple correspondence analysis (CA) for more than two variables. CA analyzes a two-way contingency table; MCA analyzes a multiway table. MCA can be viewed as a generalization of principal component analysis where the variables to be analyzed are categorical, not continuous. The MCA output using the five dummy variables (X_1 to X_5) shows that Dimension 1 explains 85% of the variation (Appendix 1) and hence the difference between the two levels of a variable has been used as weights for that variable. The weights obtained for each of these indicators with calculation details using this method are given in table 3. This option also gives negligible weight to the indicator X_5 i.e. security of tenure, as given in Option1.

Table 3: Weights for index based on MCA

Indicators	Coordinate for "0"	Coordinate for "1"	difference	|difference|	**Weights**
Structure (X_1)	0.404	-3.004	-3.408	3.408	**0.28**
Water (X_2)	0.657	-2.186	-2.843	2.843	**0.23**
Sanitation (X_3)	0.532	-3.125	-3.657	3.657	**0.3**
Sufficient living area (X_4)	0.487	-1.325	-1.812	1.812	**0.15**
Tenure (X_5)	0.128	-0.319	-0.447	0.447	**0.04**

Shelter Deprivation index 3 (SDI3) = $\sum_{i=1}^{5} WiXi$

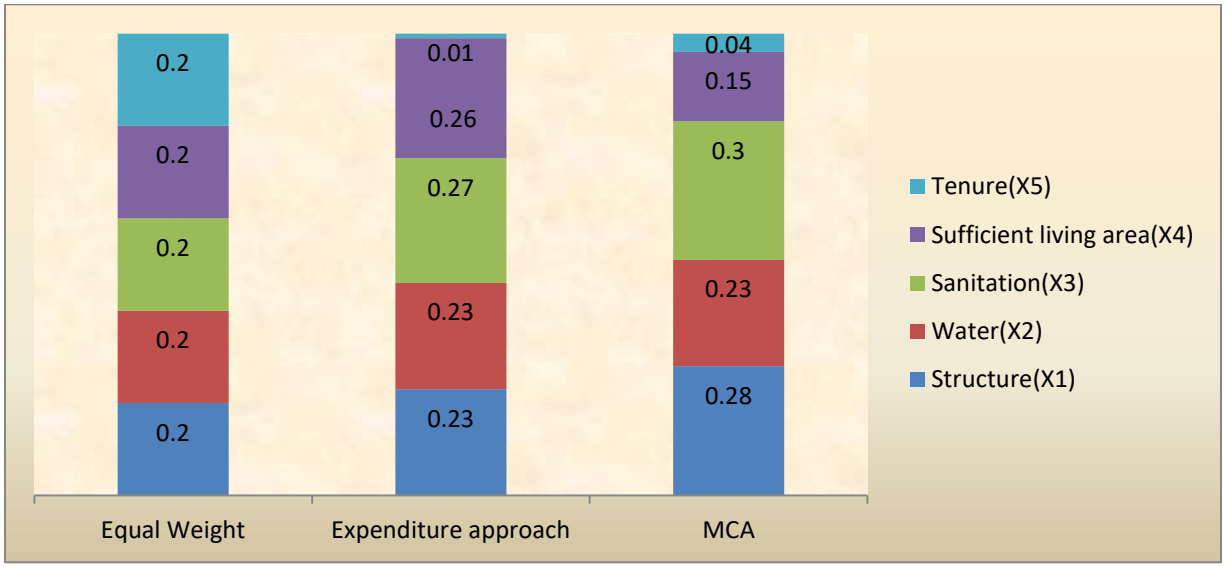
where
Wi = Weight obtained using MCA of the ith deprivation indicator
Xi = ith deprivation indicator

3. Results

3.1. Shelter Deprivation Index (SDI) based on the five deprivation indicators were calculated based on three sets of weights. The SDIs calculated range from 0 to 1, higher value showing higher intensity of shelter deprivation.

3.2. Comparing the three scenarios: The SDIs obtained using the three approaches show a strong correlation. Further the equal weight index (SD I2=0.21) gives highest value followed by Market or Exchange value (SD I1=0.19) Index and Multiple Correspondence Analysis Index (SDI3=0.18). This may be due to a better representation of the index based on MEV and MCA as compared to EW. The equal weight index is easy to understand and may be comparable across the countries and easy to apply. However giving equal weights to all the five indicators do not seem reasonable in urban areas of India. This is due to the fact that in a democratic country like India people living in slums do not worry much about safe tenure as the probability of being vacated by Government is very less. In urban India the major problems, people are facing are related to safe drinking water, improved sanitation, sufficient living area and good structure. Thus the deprivation with high priority in India may be water, sanitation, structure and sufficient living space. The MEV and MCA give higher weights to these four indicators and negligible weight to tenure (chart 1) and thus appear more justified in capturing the overall shelter deprivation. The MEV index gives approximately equal weights to the first four deprivations i.e. X_1, X_2 X_3 X_4 while MCA based index gives a lower weight to X_4. Thus the basic difference between the two indexes (SDI1 and SDI3) is lower weight to X_4 in SDI3 as compared to SDI1 (almost half). A rational thinking also points that the emphasis on kutcha house and congested house should not be same as more expenditure may be required to build a new pucca house as compared to increasing builtup area of a congested house. But as MEV is easy to understand and calculate, as compared to MCA based index, it may be the best option for measuring shelter deprivation out of the three options. The MEV index has the limitation of being restricted to India and may not be reliable for estimation across countries but as it is an efficient tool for comparison in India, it may act as a useful tool for the Government to identify areas; sections etc. and implement the schemes to the target group more effectively.

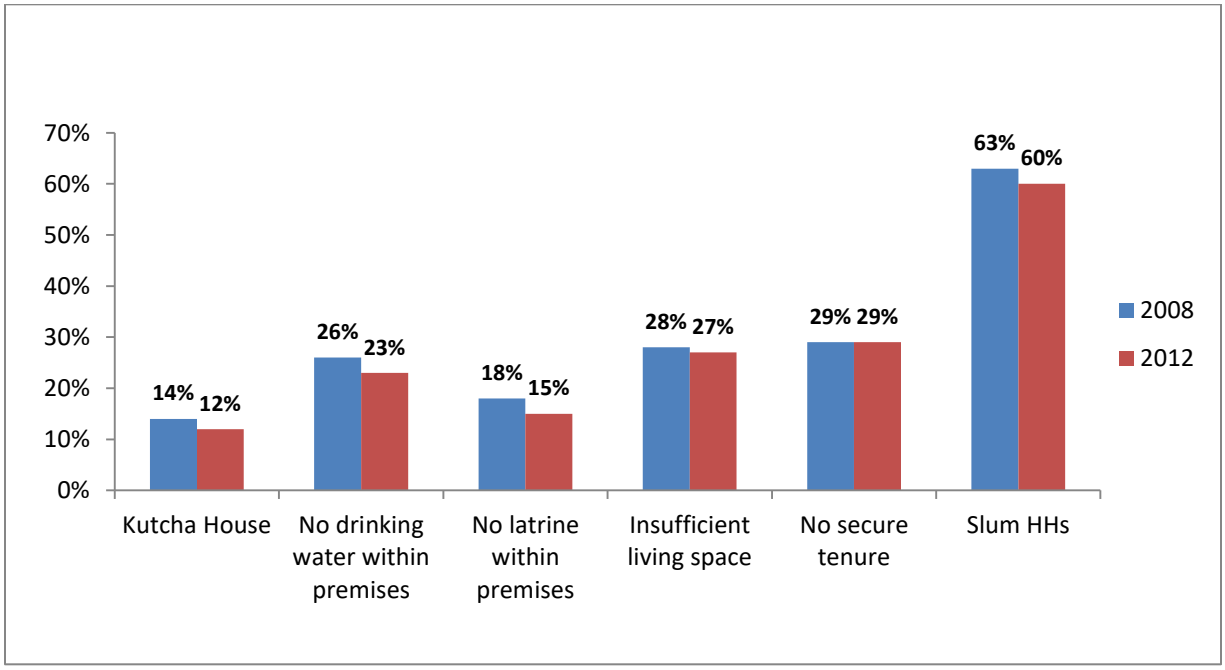
Chart 1: Weighing Diagram



3.3. Validity of the Index:

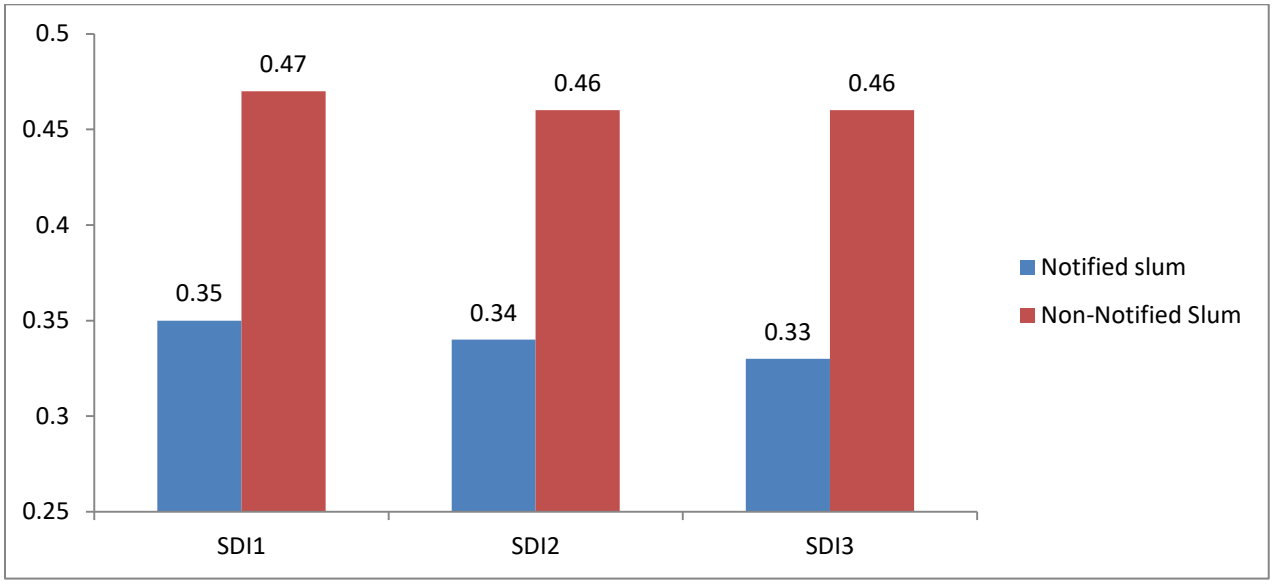
3.3.1. Having selected the Shelter deprivation index based on expenditure approach to measure intensity of shelter deprivation, we need to test the validity of this index. We will now onwards name SDI for the index based on MEV (SDI1). Comparing the change in the status of shelter deprivation during 2008-12[ii] (Chart 2) shows that the proportions of households with deprivations have decreased during the period. In 2008, there were 14% Households with kutcha house in urban area which decreased to 12% in 2012; households with no drinking water within premises also decreased from 26% to 23%; households with no latrine within premises decreased from 18% to 15%. However the remaining two deprivations – insufficient living space and insecure tenure show no improvement over the years (Chart 2). This shows that there is very slow improvement in housing conditions between 2008 to 2012. If our index is valid, it should also reflect the slow trend of improved housing conditions. The SDI decreases from 0.21 in 2008 to 0.19 in 2012 showing a trend of slight improvement in shelter deprivations and thus confirms the validity of the index.

Chart 2: Comparison of Shelter Deprivations



3.3.2. The condition in non-notified slums is poorer as compared to notified slums (National Sample Survey Office, 2010). This is because Government implements its schemes in notified slums making them better as compared to non-notified slums. The MEV indices are highest for non-notified slums as compared to other two index (chart 3) though the difference between the two areas is highest for MCA based index. As these non-notified slums actually are the more deprived, the results obtained using MEVI are valid and confirms validity of this index. Having analysed the efficiency and validity of the index based on three approaches, we find that the index based on MEV is easy to calculate, easily understandable, more suitable and representative. Hence SDI1 should be used for identifying areas requiring focus. Further the analysis shows that the deprivations X1 to X4 mainly contribute to the variability and hence these indicators are sufficient for measuring the housing deprivations. In subsequent sections we will only use SDI1 and refer this as SDI or slum Index.

Chart 3: Comparison of the Indices by Area and Type



3.3.3. Patel, Koizumi & Crooks (2014) had calculated the mean Slum Severity Index (SSI) of Mumbai as 1.41 and of Kolkata 1.22 using a sample size of 2187 Households for Mumbai and 2291 Households for Kolkata. The SSI gave equal weight to the five shelter deprivations i.e. lack of (i) security of tenure, (ii) structural quality and durability of dwellings, (iii) access to safe water, (iv) access to sanitation facilities and (v) sufficient living area. But the SDI is higher for Mumbai at 1.53 and 1.13 for Kolkata showing higher variability between the two cities as compared to SSI given by Patel (2014). We observe that Mumbai has only 28% of the population with no deprivation showing that 72% of the households are classified as slums as per UN-Habitat definition (Table 4). In contrast Kolkata has 41% of the population with no deprivation. Similarly 43% of the households of Mumbai live in slum areas (both notified and non-notified) as compared to 21% in Kolkata. This shows that Mumbai has greater housing deprivation as compared to Kolkata. The SDI depicts greater variability between the two cities as compared to SSI and hence may be considered as an improved index over SSI.

Table 4: Households by Deprivations in Kolkata and Mumbai

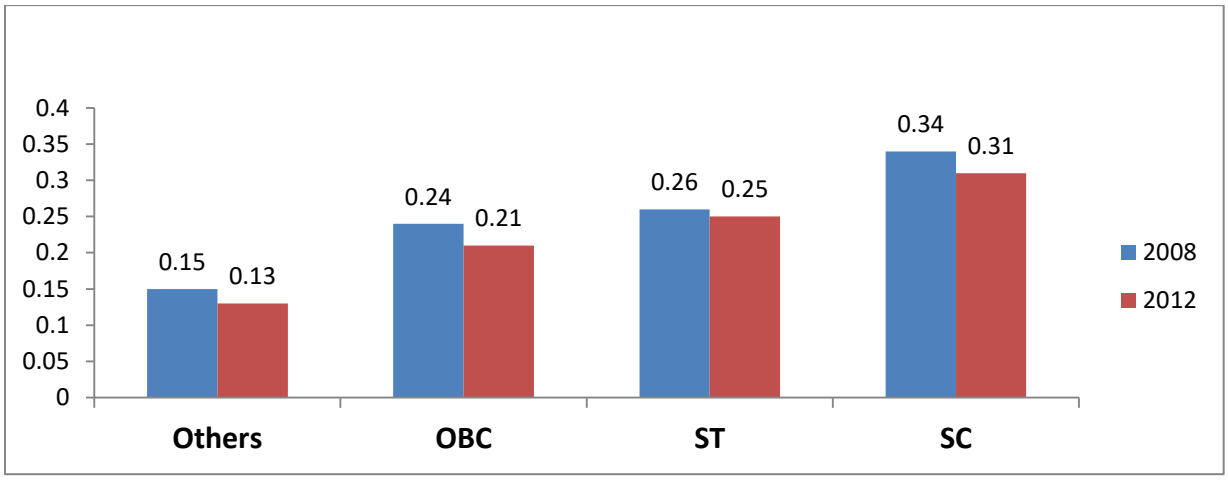
No Of Deprivations	Kolkata	Mumbai	Total
0	451,446	794,554	1,246,000
Column %	41.05	28.36	31.94
1	313,471	914,535	1,228,006
Column %	28.5	32.65	31.48
2	219,042	788,846	1,007,888
Column %	19.92	28.16	25.84
3	86,447	266,221	352,668
Column %	7.86	9.5	9.04
4	29,341	37,191	66,532
Column %	2.67	1.33	1.71
Total	1,099,747	2,801,347	3,901,094
Column %	100	100	100

4. Using Index to target the deprived groups

4.1. Comparison among social groups

4.1.1. Now we compare different social Groups based on the Index obtained. We observe that Scheduled caste people have highest deprivation index while the others/general have lower index (chart 4). This is also true in real situation in India and thus this also confirms the validity of our index. A logistic regression with slum status of HH as binary dependent variable and social groups as independent variables also confirms the results. The regression shows that probability of being slum is (i) three times higher for schedule castes as compared to others and (ii) about 2 times higher for STs and OBs as compared to others.

Chart 4: Shelter Deprivation Index across Social Groups



4.1.2. Cross tabulation of the number of deprivation by caste confirms the above variation in the index (Table 5). Table 5 shows that SCs have the lowest proportion of households with no deprivation (25%) followed by ST (32%), OBC (33%) and Others (52%). Similarly the proportion of households having two, three and four deprivations is highest among SCs followed by STs. With about 8.5 million Households among SCs and 2 million Households among STs categorized as slum, they need special focus. Most of the schemes of Government give special emphasis to SC/STs and are thus rightly focused. A recent scheme launched in 2015 named "Pradhan Mantri Awas Yojana (PMAY)" uses Socio Economic Caste census (SECC) data collected in 2011 to identify beneficiaries with priority to SC/ST. The Awas scheme gives subsidy of Rs 1.5 lakh (including convergence) to a household including toilet construction and hence may resolve the deprivation of structure and sanitation but not the other three deprivations. In addition, the annual allocations under PMAY are very low as compared to the number of beneficiaries. The index may help Government in monitoring the improvement in the housing condition over time and thus throw light on the effectiveness of many schemes.

Table 5: Distribution of Households by Social Groups

No. of Deprivations	ST	SC	OBC	Others	Total
0	953,045	2,871,500	10,912,828	17,407,272	32,144,645
column %	32%	25%	33%	52%	40%
1	881,483	3,075,153	11,152,191	9,727,469	24,836,296
column %	30%	27%	34%	29%	31%
2	530,349	2,949,583	6,534,233	4,340,550	14,354,715
column %	18%	26%	20%	13%	18%
3	348,985	1,560,286	2,737,757	1,539,215	6,186,243
column %	12%	14%	8%	5%	8%
4	207,977	772,555	1,107,833	470,733	2,559,098
column %	7%	7%	3%	1%	3%
5	31,000	136,014	216,431	62,802	446,247
column %	1%	1%	1%	0%	1%
Total	2,952,839	11,365,091	32,661,273	33,548,041	80,527,244
column %	100%	100%	100%	100%	100%

4.2. Comparison among religions

4.2.1. We observe that SDI is high for households following Islam and Buddhism while it is low for Jainism and Sikhism (Chart 5). In 2008, the highest SDI was among Buddhists which has been reduced by 20% during 4 years showing maximum improvement. The data shows that there are about 7 lakh Buddhist Households out of which more than 90% reside in Maharashtra (Table 6). Among this religious group, 70% are categorized as slum households with atleast one deprivation. 40% of these Buddhist live in slums while rest 60% live in other areas of Maharashtra in poor condition. Government may sanction a special project in Maharashtra

focusing Buddhist community though their situation has improved considerably during 2008-12. Gokhale (1986) also mentioned about the vulnerable condition of poor who converted from Mahars (Untouchables) to Buddhism in 1956. But even after conversion, their situation did not improve and further due to ambiguous constitutional status of Buddhist, they became more vulnerable.

4.2.2. Similar is the case of Muslims who have 70% of the households categorized as slum (Table 6). Muslims are distributed across many states with major concentration in Uttar Pradesh (20%) followed by Maharashtra (16%). Researchers have analysed (Ahmad, 2012) that Muslim community were at par with SC/ST in housing poverty and living standards. In our analysis, the SDI is 0.24 for Muslims which is comparable with SC (0.31) and ST (0.25).

Chart 5: Shelter Deprivation Index across Religion

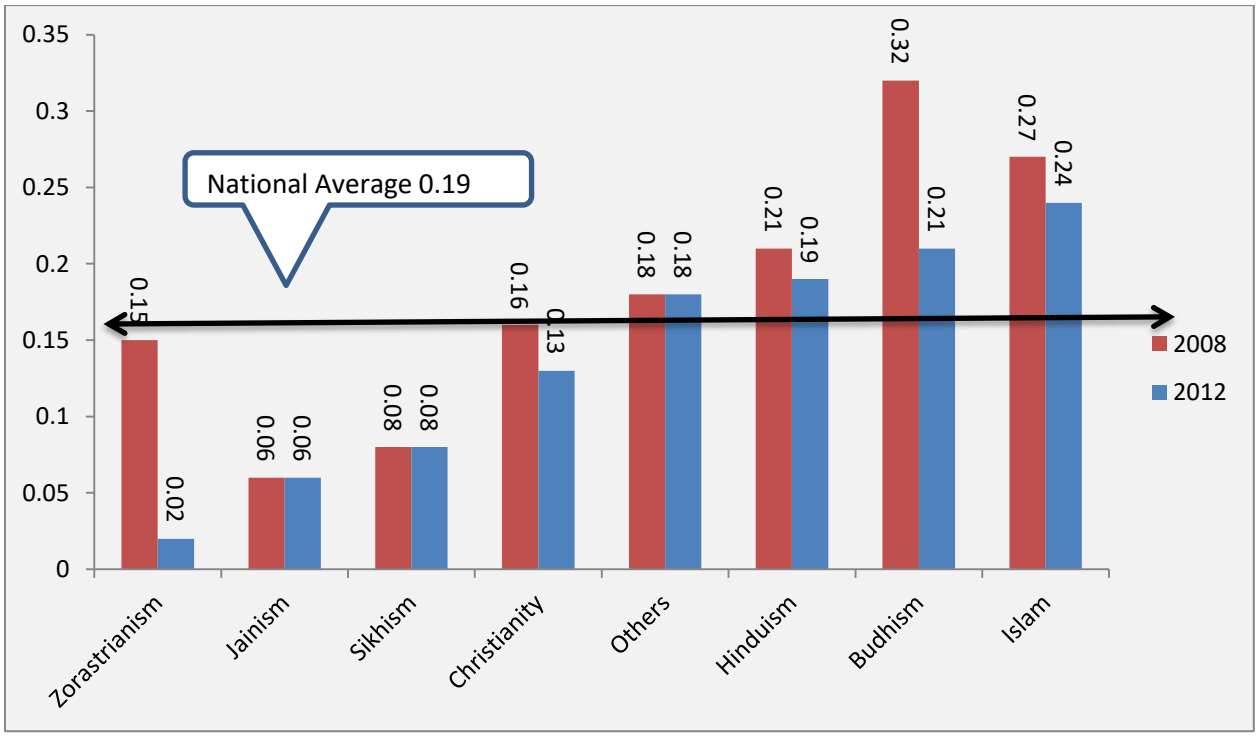


Table 6: Distribution of Buddhist by deprivation and area (No of households)

	Notified slum	Non notified Slum	Squatter Settlements	Other areas	Total
No deprivation	28,303	16,776	202	180,511	225,792
column %	16%	15%	46%	44%	32%
Atleast 1 Deprivation	146,002	93,258	235	230,444	469,939
column %	84%	85%	54%	56%	68%
Total	174,305	110,034	437	410,955	695,731
column %	100%	100%	100%	100%	100%

Table 7: Distribution of Muslim by deprivation and area (No of households)

	Notified slum	Non notified Slum	Squatter Settlements	Other areas	Total
No deprivation	143620	33724	9841	3056362	3243547
column %	14%	5%	26%	34%	31%
Atleast 1 Deprivation	861663	580676	27374	5898840	7368553
column %	86%	95%	74%	66%	69%
Total	1,005,283	614,400	37,215	8,955,202	10,612,100
column %	100%	100%	100%	100%	100%

4.3. State wise distribution of slum Households

4.3.1. Table 8 gives the state wise distribution of slum Households along with SDI. Tamil Nadu, Chattisgarh and Odisha have high SDI while North eastern states have low SDI. Haryana has shown considerable improvement jumping from 13th rank to 4th rank during 2008 to 2012. Monitoring both number of slum households and SDI can give a complete picture of the housing conditions and can also help Government in monitoring and allocating funds as per requirement.

Table 8: State /UT wise distribution of slum households

	2008-09			2012		
STATE	No of slum households	SDI	Rank	No of slum households	SDI	Rank
Nagaland	42705	0.17	16	37126	0.07	1
Mizoram	48895	0.12	7	44295	0.08	2
Assam	218310	0.08	1	306247	0.09	3
Haryana	721824	0.15	13	760107	0.10	4
Jammu & Kashmir	133769	0.12	6	160153	0.10	5
Manipur	75062	0.10	2	79865	0.10	6
Meghalaya	53172	0.11	4	55548	0.10	7
Kerala	1056468	0.14	9	1035736	0.12	8
Uttarakhand	188649	0.13	8	251863	0.12	9
Punjab	963347	0.11	5	1062283	0.13	10
Sikkim	14261	0.14	11	23901	0.14	11
Arunachal Pradesh	32242	0.18	17	27895	0.15	12
Gujarat	2275279	0.17	14	2973653	0.16	13
Himachal Pradesh	100442	0.15	12	179946	0.16	14
Delhi	1437834	0.20	19	1641544	0.16	15
Tripura	73619	0.10	3	89503	0.17	16
Goa	56859	0.17	15	93090	0.18	17
Uttar Pradesh	3975880	0.19	18	4664278	0.19	18
Karnataka	2786945	0.20	20	3473426	0.19	19
Madhya Pradesh	2024387	0.25	22	2390995	0.19	20
Rajasthan	1483145	0.14	10	2017512	0.20	21
Andhra Pradesh	5060497	0.25	24	5720613	0.20	22
Maharashtra	6592577	0.25	26	6022478	0.21	23
Bihar	1074190	0.25	23	1264807	0.23	24
Jharkhand	481035	0.25	25	845603	0.24	25
West Bengal	3137000	0.24	21	4332415	0.25	26
Odisha	952486	0.29	28	1023125	0.26	27
Chhattisgarh	659015	0.37	29	692264	0.27	28
Tamil Nadu	6006650	0.28	27	6715162	0.28	29
India	41726544	0.21		47985433	0.19	

5. Conclusions and recommandations:

5.1. As per the definition of slums given by UN-Habitat, about 60% of the urban households in India have been categorized as slum based on NSSO survey 2012 showing a dismal picture of urban India. The slum population based on the five housing deprivations gives the quantity but

we need to understand the intensity of housing poverty. The shelter deprivation index calculated in this paper measures the intensity of housing poverty of a household. The index shows a slight decrease during 2008-09 to 2012 from 0.21 to 0.19 showing slow improvement in housing conditions over these years. In 2008, there were 14% Households with Kutcha houses in urban area which decreased to 12% in 2012; households with no drinking water within premises also decreased from 26% to 23%; households with no latrine within premises decreased from 18% to 15%. However the remaining two deprivations – insufficient living space and insecure tenure show no improvement over the years. With this pace, it may take very long to provide decent housing to all the citizens. Sustainable Development Goals (SDGs) adopted by various countries in 2015, targets to ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums by 2030. Hence to achieve this goal, the pace of improvement needs to accelerated and monitored closely. The index is calculated using NSS survey data collected in 2008-09 and 2012. NSS conducts housing survey every five years and hence the index can be used to measure improvement every five years to monitor goals under SDGs.

5.2. The index can be used to find the most vulnerable sections and then focused projects/schemes can be implemented to target that section of people. Among the various social groups, the scheduled caste people have highest deprivation index while "others" group (general) has lowest deprivation index. Many poverty alleviation schemes of Government give priority to SC/STs. Socio Economic caste Census (SECC) data is being used to identify beneficiaries for giving subsidy of about Rs 1.5 lakh for constructing house to a poor under Pradhan Mantri Awas Yojana (PMAY). The SECC data classifies households according to 7 deprivations, SC/ST being one of the deprivation. Higher index for SC/ST justifies giving them priority in poverty alleviation programs like PMAY. Similarly among religious groups Muslims and Buddhists are the most vulnerable with highest SDI. Priority or special focus may be given to improve conditions of these religious groups to bring them at par with others. We observe that Shelter deprivation Index is highest for the non-notified slums followed by notified slums while it is lowest for households living in other areas. The higher index in Non-notified slums as compared to the notified slum may be due to the fact that in notified slums all schemes related to improvement of the slums are implemented leading to better amenities. Government and various NGOs need to focus on non-notified slums and other areas also so that deprived people living in these areas are also benefitted.

5.3. One of the limitations of this index is its applicability in other countries. It may be difficult to provide constant weights to indicators used in the index for all the countries as the importance/cost of deprivations may vary for different countries and so providing expenditure weights based on Purchasing Power Parity (PPP) may be a possible solution. However within India, the index can be used to compare different states, caste, religion, sections, areas and also can be used to compare improvements over time.

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Appendix

Appendix 1: MCA output

```
. mca  sanitation structure crowded tenure  water[fw=mult]

Multiple/Joint correspondence analysis          Number of obs      =     56374
                                                Total inertia      =  .0149572
    Method: Burt/adjusted inertias              Number of axes     =         2

                 |  principal              cumul
      Dimension  |    inertia     percent  percent
-----------------+-------------------------------
           dim 1 |   .0112092     74.94    74.94
           dim 2 |   .0002111      1.41    76.35
-----------------+-------------------------------
           Total |   .0149572    100.00
```

Statistics for column categories in standard normalization

Categories	mass	overall quality	%inert	dimension_1 coord	dimension_1 sqcorr	dimension_1 contrib	dimension_2 coord	dimension_2 sqcorr	dimension_2 contrib
sanitation									
0	0.162	0.724	0.078	0.683	0.723	0.075	0.186	0.001	0.006
1	0.038	0.724	0.329	-2.874	0.723	0.317	-0.783	0.001	0.024
structure									
0	0.183	0.764	0.029	0.405	0.764	0.030	0.064	0.000	0.001
1	0.017	0.764	0.321	-4.415	0.764	0.327	-0.701	0.000	0.008
crowded									
0	0.145	0.892	0.056	0.680	0.890	0.067	-0.252	0.002	0.009
1	0.055	0.892	0.148	-1.781	0.890	0.175	0.660	0.002	0.024
tenure									
0	0.142	0.442	0.009	0.124	0.182	0.002	-1.076	0.259	0.165
1	0.058	0.442	0.022	-0.307	0.182	0.005	2.665	0.259	0.409
water									
0	0.188	0.681	0.000	0.008	0.018	0.000	-0.341	0.663	0.022
1	0.012	0.681	0.007	-0.118	0.018	0.000	5.207	0.663	0.333

Appendix 2 : Variables used for measuring Shelter Deprivation indicators

a. Structural quality/durability of dwellings

In the NSS (National sample survey Office, India) survey a question about the material used in roof of house, was asked from the respondent. The codes of the responses obtained were:

The response from the survey for this question was used to measure the structural quality/durability of dwellings. The household living in kutcha roof was considered deprived and given code 1 while a household with pucca roof was given code 0.

Structure = 1 if roof is made of kutcha material or concrete

0 otherwise

b. Sufficient living area

A household was considered crowded if number of person per living room was greater than 3. NSSO survey data gives information on number of living rooms and household size which was used to measure this indicator. A household considered deprived of this indicator was given code 1 while a household without deprivation in this indicator was given code 0.

Crowded= 1 if Persons per living room >3

0 otherwise

c. Access to improved water supply

The household was considered as having access to improved water supply if the source of drinking water is within the premises. A household considered deprived of this indicator was given code 1 while a household without deprivation in this indicator was given code 0.

Water= 1 if source of drinking water outside premises

0 otherwise

d. Access to improved sanitation

Measurement:

NSSO survey covers information about the availability of latrine with distance. A household considered deprived of this indicator was given code 1 while a household without deprivation in this indicator was given code 0.

Sanitation= 1 if latrine outside premises

0 otherwise

e. Security of tenure

Measurement:

Households living in owned or hired dwellings (with written contract or given by employer) were taken as having safe (improved) tenure in this paper . A household considered deprived of this indicator was given code 1 while a household without deprivation in this indicator was given code 0.

[ii]Census 2011 defines a compact area as slum if at least 300 persons or about 60-70 Households are living in poorly built congested houses, in unhygienic conditions usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities (National Building Organization, 2011).

[ii] Data was taken from NSSO housing surveys conducted in 2008-09 and 2012.

Issues and Challenges in Estimating Catastrophic Health spending in India

Sanjay K Mohanty[1], Anshul Kastor[2] and Laxmi Kant Dwivedi[3]

Abstract

Estimates on catastrophic health spending (CHS) in India is usually derived from the consumption survey (schedule 1.0) or health survey (schedule 25.0) carried out by the National Sample Survey Organisation (NSSO). These estimates are not consistent and suffer from at least two implicit limitations. While the health surveys used a single/ a few questions on consumption expenditure that tends to affects the estimates of CHS, data on household health spending collected in the consumption expenditure survey is limited and tend to lower the CHS. In economic literature, a large number of studies documented that a single question on total monthly consumption expenditure is more likely to underreport the expenditure as compared to those with disaggregated categories. This paper use four rounds of NSS data (both consumption and health surveys) and outlined the issues and challenges in estimating the CHS in India. The CHS is estimated based on 10% thresholds of household consumption expenditure and 40% of household capacity to pay (WHO recommended methodology). Results confirm underestimation of consumption expenditure in health surveys. The consumption survey appeared to underestimate the household health expenditure. An estimate of CHS varies to large extent under alternative method. The correlation of CHS derived from alternative method was weak. Given the importance of estimation of CHS, we suggest to integrate an abridged version of consumption expenditure in NSS health survey and undertake longitudinal study on health financing to provide evidence for health policy in India.

Key words: catastrophic health spending, out-of-pocket expenditure, NSS, India, data.
JEL Codes: C1, C18, I10, I14, I18

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1. Introduction:

Estimation of out-of-pocket (OOP) expenditure and catastrophic health spending (CHS) are gaining increasing research and programmatic attention in developing countries (Xu etal. 2003; van Doorslaer etal. 2007;Arsenijevic, Palova and Groot 2013; Rashad and Sharaf 2015; Amaya-Lara 2016). The high OOP reduces access to health care, increase untreated disease and irrational use of drugs, reduced consumption of food and basic necessities, increase poverty and long-term impoverishment and makes poor poorer (Liu, Rao and Hsiao 2003; Wagstaff and Doorslaer 2003; Pannarunothaiand Mills 1997; Hjortsberg, 2003; Garg and Karan 2009; Bonu etal 2007; Whitehead, Dahlgren and Evans 2001). Theoretical perspective and systematic review on adverse economic consequences of health shock have been documented (Malntyre etal 2006; Alam and Mahal 2016). The CHS link OOP with capacity to pay, usually measured by the economic well being of the household (Xu etal. 2003; van Doorslaer etal. 2007). While income data in developing countries suffers from under-reporting and unreliable, the consumption expenditure data are generally recommended and used to reflect the economic well-being of household (World Bank 2000; Van Doorslaer etal 2006). Data on consumption expenditure is preferred to income for conceptual (long term prospects, less fluctuation, capture differentials in consumption due to accumulation of assets and credits) and economic reasons (under-reporting, net tax and capture government transfer) in low resources setting (Meyer and Sullivan 2003).

Data quality on consumption expenditure, household health spendings and use of appropriate method is paramount in estimation of catastrophic health spending and impoverishment due to health payment. Estimates of consumption expenditure vary due to survey designs and survey priorities (consumption surveys, living standard survey, health surveys etc.). In economic literature, a large number of studies documented that a single question on total monthly consumption expenditure is more likely to underreport the expenditure as compared to those with disaggregated categories (Winter 2004;Browing, Crossley and Weber 2003) while extensive list of expenditure items yield reliable consumption data (Deaton 1997; Pradhan 2001; Lanjouw and Lanjouw 2001). The number of questions canvassed to estimate consumption expenditure varies from a single question to over 400 questions depending on the type of surveys and context. Besides, the recall periods (7 days/30 days/365 days) vary within and among countries. For example, in India, the National Sample Survey (NSS) in their health survey (71st round, 2014-15) canvassed a single question on consumption expenditure while the consumption expenditure survey (68th round, 2011-12) canvassed over 340 items to derive a single variable on consumption expenditure. Further, the quality of consumption data depends on recall periods and structure of consumption questions (Lu etal 2009; Battisin, Miniachi and Weber 2003). With respect to method, the estimates of CHS are derived using two alternative approaches, both based on ability to pay but estimates vary largely due to the type of method used (Berki 1986, Xuetal. 2003).

The aim of this paper is to outline the issues and challenges in estimating catastrophic health spending in India. Reliability of consumption expenditure and data on medical care across surveys and over time have been examined. The paper has been conceptualized with the following rationale. First, the out-of-pocket health spending in India remained high over time

(71% in 2004 and 69% in 2014) and leading to distress financing and increasing the poverty level (Joe 2015; Garg and Karan 2009). The recently released National Health Policy, 2017 aimed to reduce the extent of catastrophic health spending by 25% by 2025 from its current level by increasing public spending on health. Second, the increasing prevalence of non-communicable diseases, increasing use of technology, and the demographic transition lead to increase household health spending across socio-economic groups. The household health spending is growing at least twice faster than the overall economic well being of the household (Mohanty etal 2016). Third, the estimate of CHS varies across and within the survey owing to type of method used and the data quality. While the health surveys that provides detailed information on health expenditure, it used a single/few question on consumption expenditure. Similarly, the consumption expenditure surveys use detailed question on consumption expenditure but limited information on morbidity and health care. Understanding merits and limitations of these surveys are a prerequisite to arrive reliable estimates of CHS in India.

2. Data and Method

2.1. Data

The National Sample Survey (NSS) is the official statistical system of Government of India that has been conducting large-scale population based surveys on various socio-economic and health issues in the country since its inception in 1950. Till date, 74 rounds have been completed and these data are largely used among researchers, government and various organization. Among various rounds of the survey, the morbidity and health care surveys in 60th round (carried out during January-June 2004), the social consumption in 71st round (carried out during January-June 2014) referred as health surveys, and the consumption expenditure survey of the 61st round (July 2004-June 2005), 66th round (July 2009-June 2010) and 68th round (July 2011-June 2012) have been largely used in estimating the catastrophic and impoverishment effect of health spending in India. The consumption surveys aimed to provide the economic well-being of the population including estimation of poverty and inequality and the health surveys intended to provide morbidity and health care spending of households. These surveys were nationally representatives and provide comprehensive information on morbidity and health care expenditure on outpatient and inpatient visit for every member of the population.

Two rounds of health surveys are similar in instrument, design and provide changes in health and health spending. A large number of scientific publications, research reports and the policy documents have been published using data from these two rounds of the surveys. Studies derived from these surveys often used the consumption expenditure in understanding the economic gradient of health care. Though health surveys covered extensive information on morbidity, health spending for each member by episode but there is only one/ a few questions on consumption expenditure in these surveys. On the other hand, the consumption expenditure surveys collect Five questions (expenditure on medicine, test, doctor's fees, hospital charges and other medical expenses) of household institutional health spending (hospitalization) in a reference of one year and five question on non-institutional health

spending as a part of consumption surveys. Questions on consumption are extensive and similar over time. Findings from these surveys are available in reports of respective rounds (NSS $2006_{a;}$ NSS $2006_{b;}$ NSS 2014; NSS 2016). We have used the unit data from 60th and 71st round of health surveys and the 61st and 68th round (type 1) of consumption survey to examine the similarities and variation in health and consumption variables across surveys and over time.

2.2. Method

Annual per capita consumption expenditure (APCE) and annual household health expenditure (AHHE) are two key variables used in the analyses. The APCE has been derived from the monthly per capita consumption expenditure (MPCE). Since surveys were carried out at different point of time between 2004 and 2014, we have converted the consumption and health expenditure of 2011-12 and 2014 at 2004-05 prices (constant prices). Descriptive statistics, kernel density curve and ordinary least square regression are used in the analyses. In literature there are two methods used in estimating the CHS. In the most simplistic approach, out-of-pocket health spending exceeding fixed proportion of health spending (>10%) is termed as CHS (Berki 1986). Mathematically, health spending is defined as catastrophic if $T/x \geq 10$ ……..(1)

where T is the OOPE, x is the consumption expenditure

The second approach defined CHS based on the capacity to pay (CTP) and defined as

$T / [x-f(x)] \geq 40$ ……(2)

where f(x) is the subsistence expenditure (Xu etal. 2003). The cut-off of 10% or 40% is a normative decision. Estimates from these two approaches are not consistent.

3. Results

Fig1 shows the plot of the kernel density curve of MPCE from four rounds of health and consumption surveys during 2004-14 at 2004-05 prices. All these curves had a single mode at about 400-500 rupees. In general, the patterns of density function of MPCE from consumption surveys and health surveys are similar. However, the density curve from consumption survey has shifted rightward over time, possibly due to improved standard of living. Also, the MPCE from consumption survey is smoother than the health survey. On the other hand, the MPCE from health survey is also similar and had shown heaping to the right in both the periods. Since MPCE from health surveys are derived using few questions, there are humps suggesting evidences of digit preference at 1000, 1500, 2000 etc. A higher proportion of the households in health surveys reported lower level of consumption expenditure as compared to that from consumption surveys over time. The estimates of consumption expenditure from consumption survey appeared to be reliable.

Fig 1: Kernel density curve of monthly per capita consumption expenditure from consumption and health survey in India, 2004-14

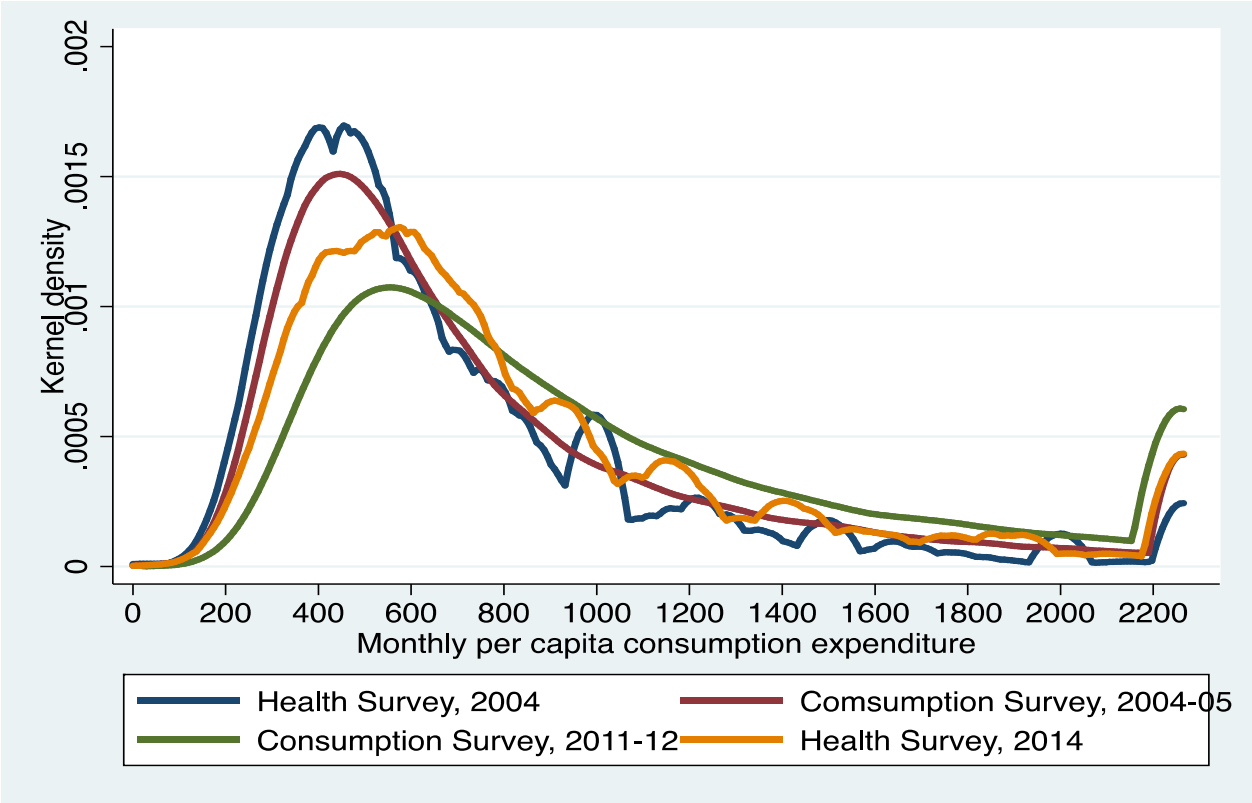

Fig 2 (a) gives the plot of kernel density curve of household annual health expenditure on hospitalization (annual institutional health expenditure) from consumption survey (2004) and health survey 2004-05. The modal points from both surveys are at about 2000 rupees. The patterns of health expenditure from both the surveys are opposite to that of MPCE. The annual institutional health expenditure from health survey is smoother than the consumption survey. There is evidence of digit preference at 5000, 10,000, 15,000 etc. in consumption survey. A higher proportion of the households in consumption survey is at lower level of health spending as compared to health surveys. Fig 2 (b) plot of kernel density curve of household annual health expenditure on hospitalization (annual institutional health expenditure) from consumption and health surveys of 211-12 and 2014 respectively. The general pattern of density curves remained similar but the curve shifted rightward suggesting increased health spending over time.

Fig 2 (a): Kernel density curve of health expenditure on hospitalization from consumption and health survey, 2004-05

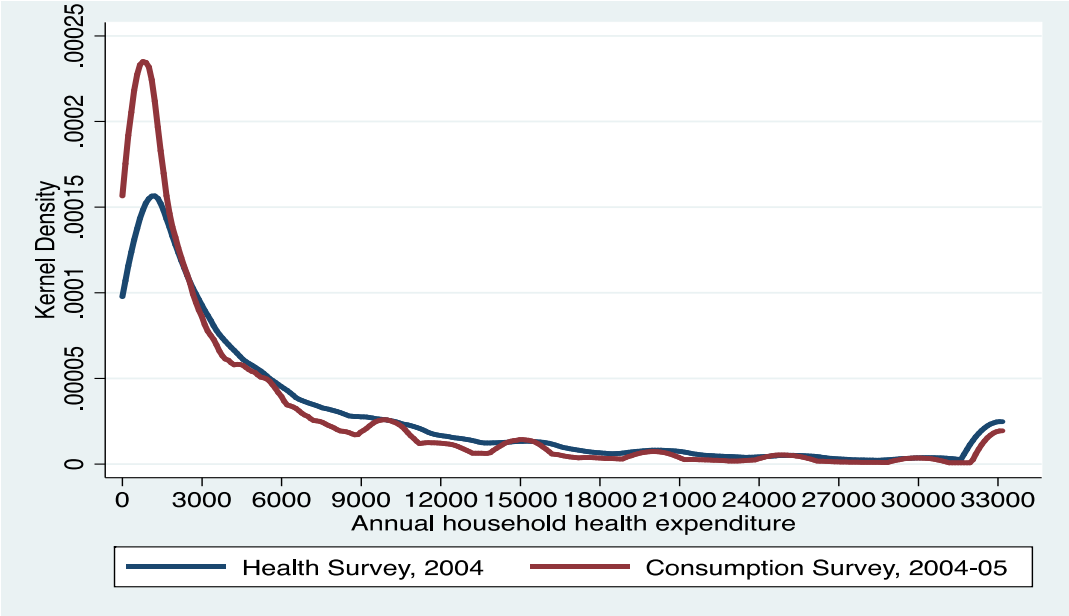

Fig 2 (b):Kernel density curve of health expenditure on hospitalization from consumption and health survey, 2011-12 and 2014 at 2004-05 prices

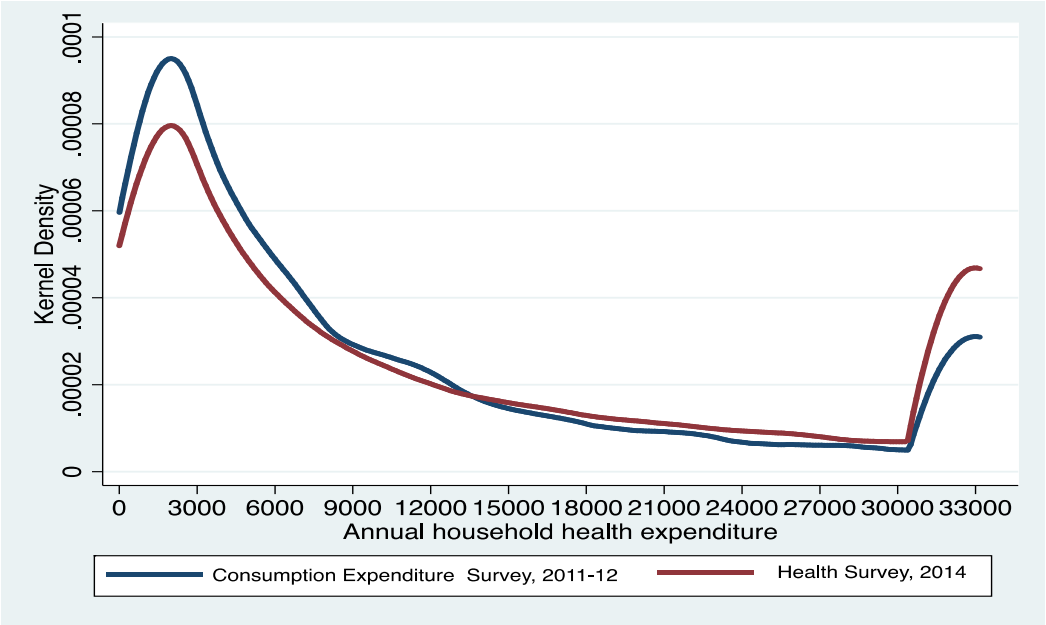

Table 1 presents the distribution of APCE and annual household health expenditure on hospitalization at 2004-05 prices from health surveys and consumption expenditure surveys during 2001-14. The APCE from health survey was lower than that from consumption survey over time. For example the APCE was 8319 rupees from consumption survey as compared to 7282 rupees from health survey during 2004-05. The mean values of consumption expenditure from health surveys were lower at all level of distribution. Ratio of MPCE from

consumption and health survey suggests that the underestimation of consumption expenditure was relatively higher among richer population. In the case of annual household health expenditure on hospitalization, the mean spending was lower from consumption survey compared to health surveys except 5th and 10th percentile.

Table 1: Descriptive statistics of annual per capita consumption expenditure and annual health expenditure of household on hospitalization (in Indian rupees) at 2004-05 prices from consumption and health surveys in India, 2004-14

Annual per capita consumption expenditure/annual health expenditure on hospitalization	Period 1		Period 2		Ratio of annual per capita consumption and health expenditure from consumption and health surveys	
	Consumption survey, 2004-05	Health Survey 2004	Consumption survey 2011-12	Health Survey 2014	Period 1	Period 2
Annual per capita consumption expenditure						
5th Percentile	3387	3072	4309	3618	1.10	1.19
10th percentile	3975	3650	5092	4344	1.09	1.17
25th percentile	5255	4867	6841	5791	1.08	1.18
50th percentile	7447	6692	10023	8267	1.11	1.21
75th percentile	11667	10139	15861	12410	1.15	1.28
95th percentile	25374	20278	34010	27509	1.25	1.24
Mean	8319	7282	10984	9160	1.14	1.20
N	124644	73863	101662	65925		
Annual health Expenditure on hospitalization						
5th Percentile	200	150	278	214	1.33	1.30
10th percentile	315	350	426	395	0.90	1.08
25th percentile	775	1045	1084	1156	0.74	0.94
50th percentile	2200	3150	2880	3570	0.70	0.81
75th percentile	6000	8774	7399	10193	0.68	0.73
95th percentile	24000	32000	28800	38080	0.75	0.76
Mean	7262	6234	8096	9785	1.16	0.83
N	13359	31510	16009	46688		

Monthly per capita consumption expenditure and annual household health expenditure on hospitalisation from consumption and health surveys, 2014-15 : Table 2(a) presents result of regression analysis by using the MPCE at 2004-05 prices as dependent variables. The MPCE has been regressed over time and across surveys and the MPCE from consumption expenditure survey in 2004-05 is taken as the refernce. The rationale is to understand to what extent the MPCE has changd across surveys / over time. We found that the MPCE from health survey in 2004 (simillar time period) was lower by 136 rupees as compared to consumption survey in same year. The MPCE from same surveys over time (2004-05 and 2011-12) has increased by 310 rupees and suggesting increase in standard of

living of the population. However, MPCE from health survey of 2014 has only increased by 41 rupees suggesting underestimation of consumption expenditure in 2014 health survey. If the reportings of cosnumption expenditure were true in both surveys, the estimates would have been simillar or higher than that of 2011-12.

Table 2 (a): Regression result of trends in monthly per capita consumption expenditure from consumption and health surveys in India, 2004-14

	Coefficient	t-statistics	95% CI	
Consumption expenditure survey, 2004-05 (Reference)			Lower Limit	Upper Limit
Health expenditure survey, 2004	-136	-19.59	-149	-122
Consumption expenditure survey, 2014	310	49.17	298	323
Health expenditure survey, 2014	41	5.67	27	55
Constant	852	201.27	843	860

Table 2(b) presents the result of regression analysis by using annual household health expenditure on hospitalisation (AHEH) from health survey, 2004 as dependent variables. The AHEH has been regressed over time and across surveys and the AHEH from health survey in 2004 is taken as the refernce. We found that the annual household health expenditure from consumption survey in 2004-05 was lower by 136 rupees than the health survey in 2004. The annual health expenditure on hospitalisation during 2004 and 2014 (health survey) has increased by 1584 rupees. The annual household expenditure on hospitalisatin from cosnumption survey in 2011-12 showed 804 rupees lower than health survey 2004 suggesting underestimation of health expenditure in consumption expenditure surveys.

Table 2 (b): Regression result of trends in annual household health expenditure on hospitalisation from consumption and health surveys in India, 2004-14

	Coefficient	t-statistics	95% CI	
Health expenditure survey, 2004 (R)			Lower Limit	Upper Limit
Consumption expenditure survey, 2004-05	-2196	-8.61	-2696	-1696
Consumption expenditure survey, 2014	-804	-3.35	-1274	-334
Health expenditure survey, 2014	1584	8.79	1231	1937
Constant	8904	63.99	8631	9177

Studies on catastrophic health spending: How are they affected?

Increasing number of studies are estimating catastrophic health spending and impoverishment effect of health spending. Table 3 presents list of eight studies that provide estimates of CHS/ discuss methodological limitation of such estimates in India. We have classified these studies into two categories; five studies estimated CHS using consumption expenditure survey (Bonu, Bhushan and Peter 2007; Selvaraj and Karan 2009; Ghosh 2010; Pal 2012; Raban, Dandona and Dandona 2013), b) three studies estimated CHS from health surveys (Bonu etal 2009; Goli etal 2016; Tripathy etal 2016). The estimates from these studies differ not only due to varying time and nature but also due to method used within the same data set. Studies derived from consumption expenditure surveys had underestimated the extent of catastrophic health spending because the health expenditure in these surveys are underestimated. On the other hand, studies based on health survey are more specific than a particular service uses. These findings have specific relevance on methodological limitations in estimating CHS (Bonu etal 2009). Estimates derived under method 1 is not suitable and method 2 yields more reliable estimates. The correlation coefficient of CHS under alternative method was weak (0.69).

Table 3: Studies on catastrophic health spending in India based on NSS data

Authors	Data Source, round and type (NSS)	Title	CHS is defined as fixed proportion of household consumption expenditure (> 10%) (Method 1)	CHS is defined as higher than 40% of capacity to pay/non-food expenditure (Method 2)
1.Bonu, Bhushan and Peter, 2007	NSS consumption survey (61st round), 2004-05	Incidence, intensity and correlates of catastrophic out-of-pocket health payments in India	CHS was estimated at 13.1%	CHS was estimated at 5.1%
2. Selvaraj and Karan, 2009	NSS consumption survey, 1999-2000 and 2004-05	Deepening health insecurity in India: evidence from national sample surveys since 1980s.	Catastrophic health spending has increased from 10.8% in 1999-200 to 15.4% by 2004-05	Not computed
3. Ghosh (2010)	NSS consumption survey, 1993-94 and 2004-05	Catastrophic payments and impoverishment due to out-of-pocket health spending: The effects of recent health sector reforms in India, *EPW*	OOP payment expenditure exceeding 10% of total household consumption expenditure was 13% in 1993-94 and 15.4% by 2004-05	Not computed

4. Raban, Dandona, R., and Dandona, L. (2013).	NSS consumption survey 2004-05 and 2009-10,	Variations in catastrophic health expenditure estimates from household surveys in India, WHO Bulletin	CHS was estimated at 3.8% in 2004-05 and 3.5% in 2009-10	CHS was estimated at 14.0% in 2004-05 and 13.9% in 2009-10
5. Bonu etal. (2009)	NSS, Health survey 2004	Incidence and correlates of catastrophic maternal health care expenditure in India, *Health Policy and Planning*	are better than measures based on proportion of health expd (16%)	CHS estimates based on capacity to pay (51%)
6. Goli etal. (2016)	NSS, Health survey 2014	High Spending on Maternity Care in India: What Are the Factors	CHS on maternal care in 2014 was 51% compared to 16% in 2004	Not computed
7. Tripathy etal. (2016)	NSS, Health survey 2014	Cost of hospitalisation for non-communicabe diseases in India: are we pro-poor	52% of hospitalisation episode due to non-communicable diseases were carastrophic	Not computed
8. Mohanty and Kasor (2017)	NSS, Health survey 2004 and 2014	Out-of-pocket expenditure and catastrophic health spending on maternal care in public and private health centres in India: a comparative study of pre and post national health mission period	Not computed	CHS on institutional delivery had declined from 56% in 2004 to 25% by 2014
9. Mohanaty, Kim, Khan and Subramanium (2018)	NSS consumption survey 2011-12	Geographical variation in household and catastrophic health spending in India:Assessing the relative importance of villages, districts and states, 2011-12	Not computed	CHS was estimated at 23% and varies enoromusly across states of India
10.Pandey etal (2018)	NSS consumption survey 1993-94, 1999-2000, 2004 and 2011-12. NSS health survey 1995-96, 2004 and 2014	Trends in catastrophic health expenditure in India: 1993 to 2014	Both consumption and health surevy showed increase in CHS in India over time	Not computed

Fig 3 presents the estimates of CHS under alternative methods for bigger states of India. In every state, the estimate of CHS based on method 1 (10% of households consumption expenditure) is lower than that of method 2 (40% or more households capacity to pay). The differences were highest in the state of Andhra Pradesh and lowest in Delhi. The CHS uder both the method were highest in Kerala and lowest in Assam.

Fig 3: Percentage of households incurring catastrophic health spending under alternative methods of estimation, 2011-12

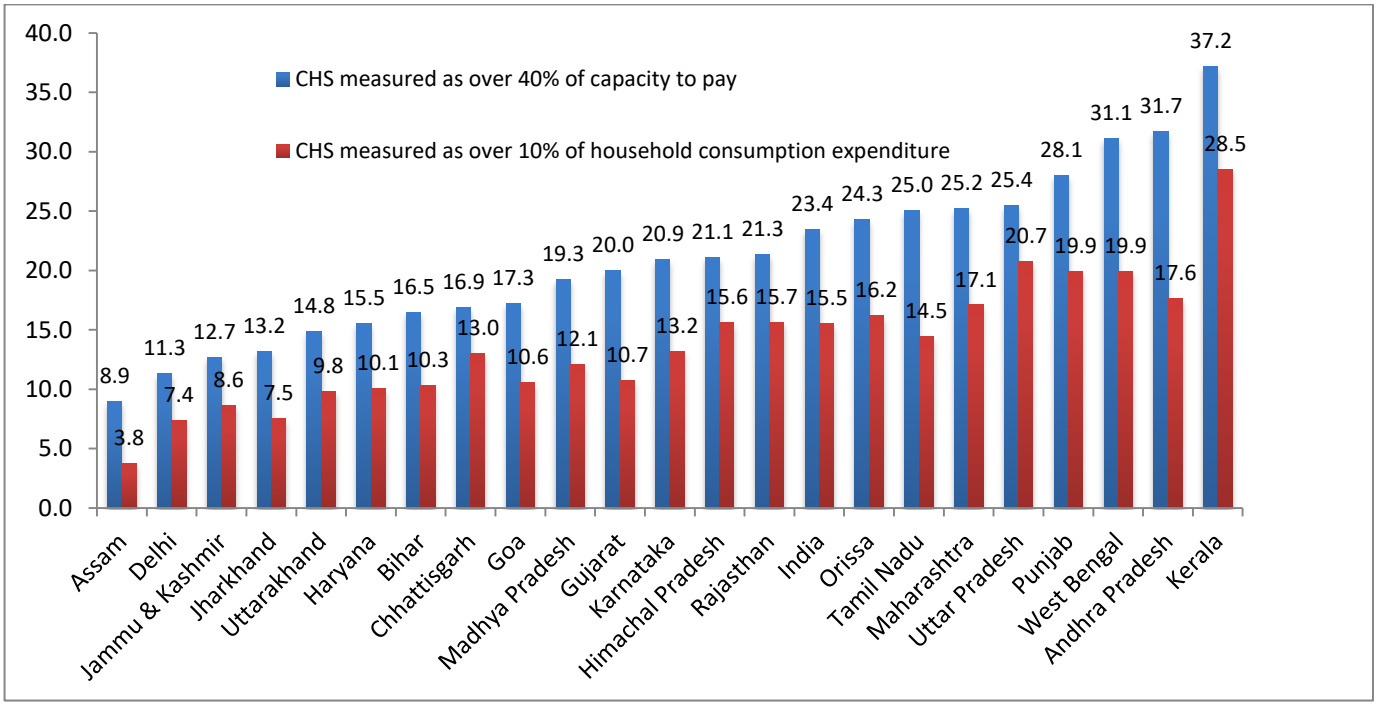

Table 4 present the cross classification of CHS by two alternate methods. About 62% households classified as catastrophic under method 2 were also classified as catastrophic under method 1 while 33% classified as catastrophic under method 1 were not captured in method 2. Similarly, about 2% households were not classified as incurring catsrophic health spending were classified as incurring catastrophic health spending in method 1.

Table 4 : Percentage of households incurring catastrophic health spending by alternative methods in India, 2011-12

Method 2	Method 1		Total Percent	N
	Catastrophic	Non-catastrophic		
Catastrophic	62.28	32.72	100	81475
Non-catastrophic	2.02	97.98	100	20176

4. Discussion and conclusion: Estimation of catastrophic health spending is useful exercise for multiple stakeholders; academia, researchers, policy makers, international organizations etc. and a key input in designing and implementing the health policy. Such estimates are of immense use in India as the out-of-pocket expenditure accounts more than two-third of health spending and remained unchanged over time. The recent National Health Policy, 2017 aimed at increasing the central government spending on health to 2.5% of GDP by 2025 and reducing the catastrophic health spending by 25% from its current level. However, the

estimates of the CHS in India mostly used data from the consumption survey or health survey carried out by the National Sample Survey Organisation (NSSO) during 2004-2014. The estimates from these studies vary largely across and within survey owing to data and methodological limitations.The aim of this paper is to outline the data limitations and challenges in estimation of catastrophic health spending in India. The unit data from four rounds of NSS is used in the analysis. We have chosen to limit the focus to NSS data as these data are mainly used in estimation of CHS in India. The main issues pertaining to estimation of CHS and availability of variables are given below.

4.1. Issues in estimation of CHS from consumption expenditure survey

4.1.1. Underestimation of health expenditure of the household: The annual health expenditure on hospitalization collected in NSS consumption surveys are underestimated compared to health surveys. This is possibly due to recall lapse on various type of health spending (hospital charges, medicine, test etc.) for all members of the household by the respondent in consumption survey. The underestimation of health spending in consumption expenditure leads to lower estimates of catastrophic health spending.

4.1.2. No disaggregated information on health spending by members of the household: The household health expenditure in consumption expenditure survey are collected by asking aggregate questions on health spending of the household. The health surveys record detailed questions on episode of hospitalization for each member in the household and more likely to collect reliable data on health expenditure.

4.1.3. No information on morbidity of members of household: The consumption survey does not provide information on morbidity of members of the household. The focus of the consumption survey is on estimating economic well-being and so the morbidity data are not recorded. Hence, it is not possible to relate the health spending to disease unlike health surveys.

4.1.4. No information on repayment: In consumption survey, there is no question on repayment of health spending. Estimation of out-of-pocket expenditure and consumption expenditure required excluding repayment from total health expenditure of the household. Such information is not collected in health surveys.

4.1.5. No data on health spending of the deceased: Literature suggests that health spending in terminal year of life is significantly higher than rest of the life (Seshamani and Gray 2004; Zweifel etal. 1999; Ladusingh and Pandey 2013). The mean expenditure of a deceased was three times higher (54,637 rupees) than survivors (17, 737 rupees). The consumption surveys do not collect the health care cost of deceased. Hence, the estimates of catastrophic health spending derived from these surveys are underestimated.

4.2. Issues in estimation of CHS from health survey

4.2.1. Consumption expenditures are under-estimated: Evidences and literature suggest the limitations of a single /few questions in capturing true consumption expenditure of the household. The MPCE derived from health surveys is significantly lower than that from consumption surveys over time. Hence, the estimates on CHS derived from health surveys are largely affected.

4.2.2. No segregation on food and non-food expenditure that is used to estimate catastrophic health spending: Estimates of CHS using WHO recommended method required data on food expenditure. Since such variables are not available in these surveys, there is difficulty in using this method in estimating CHS.

4.2.3. Limited information on health expenditure of the deceased: The NSS data provides expenditure of deceased who are hospitalized. However, a large proportion of population, particularly, deceased elderly spent on medicare as out-patient services. Such information is not captured in health surveys.

4.2.4. Reference period of out-patient is small, only 15 days: Reference period for out-patient services is 15 days. This reference period is relatively shorter which does not capture the household spending on out-patient visit.

4.3. Methodological Limitations: The choice of method directly affects the estimates of CHS. In literature two methods are used and it has been established that the estimates based on fixed proportion of consumption expenditure is not suitable as it is not sensitive to poor and low-income groups. A small amount of health spending to those who are below poverty line is catastrophic. The method suggested by Xu (2003) is by far the best practiced methodology in literature. However, in this method, the adjustment to economies of scale by size of household needs to be reworked in Indian context.

4.4. Conclusion: We suggest that the data and methodological challenges should be addressed before arriving at reliable estimates of catastrophic health spending. Because such estimates have larger relevance for health policy, we suggest the followings to derive reliable estimates of catastrophic health spending in India:

4.4.1. An abridge version of consumption schedule should be integrated in health surveys. Since health surveys provide comprehensive information on health expenditure, Integrating an abridge version of consumption expenditure would be useful. It may provide close estimates of MPCE and estimate on food and non-food expenditure.

4.4.2. Longitudinal study to track the health spending of the households: It is suggested to undertake a longitudinal study that will periodically collect data on health spending (say in three months). Because, one year period is long to recollect the health spending on hospitalization. Similarly, outpatient health expenditure in 15 days reference period may not be suitable for deriving estimates of health spending for one year. Regular collection of data in an interval of three months may provide robust estimate of household health spending.

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Street Vendors in Food Service Activities and Their Spatial Distribution

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Abstract

Street vending plays an important role in informal sector of economy. It generates large employment on relatively less investment and provides goods and services in cost effective prices. National Sample Survey Office (NSSO) in its 67th round of socio economic survey covered unincorporated non-agriculture enterprises throughout the country during July 2010 to June 2011. Based on the data, the contribution of the street vendor enterprises in the unorganized food service activities sector has been analyzed in terms of their magnitude, employability, efficiency and growth. The spatial distribution of the street vendor enterprises across the States/UTs has been studied and the performance of States/UTs has been evaluated based on composite index. Status of the street vendor enterprises in the metropolitan cities has also been discussed and presented.

Key Words: Street Vendors, Food Service Activities, Composite Index, Performance Score, Metropolitan Cities

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1. Introduction

1.1. Vending is an important source of employment for large number of urban poor as it requires low skills and small financial inputs for the entrepreneurs. It provides convenience and low-priced goods and services to the customers. It makes the cities economically bustling and socially charming. Broadly defined, a street vendor is a person who offers goods or services for sale to the public without having a permanent built-up structure but with a temporary static structure or mobile stall (or head-load). Street vendors could be stationary and occupy space on the pavements or other public/private areas, or could be mobile, and move from place to place carrying their wares on push carts or in cycles or baskets on their heads, or could sell their wares in moving buses. Government of India has used the term 'urban vendor' as inclusive of traders and service providers, stationary as well as mobile, and incorporates all other local/region specific terms used to describe them.

1.2. Recently, there had been a lot of discussions on regularization and governance of the street vendors, emanating from their large and uncontrolled presence on one hand and the manufacturing or service quality of the goods and services and safety on other hand. It needs availability of reliable data and the characteristics of street vendors across the industries and services to understand the issues.

1.3. National Sample Survey Office (NSSO) in its 67th round of socio economic survey covered unincorporated non-agriculture enterprises throughout the country during July 2010 to June 2011. The survey covered manufacturing, trade and other services enterprises excluding construction, however coverage being of unincorporated enterprises, it excluded the enterprises which were incorporated i.e. registered under Companies Act, 1956; the manufacturing enterprises registered under section 2m(i) and 2m(ii) of the Factories Act, 1948; the electricity units registered with Central Electricity Authority (CEA); Government, public sector enterprises and the cooperatives. As such, these may also be treated as unorganized/ informal sector enterprises. The ownership categories covered under the survey were i) proprietary and partnership enterprises (excluding limited liability partnership); and ii) trusts, self-help groups (SHGs), non-profit institutions (NPIs) etc.

1.4. While collecting important operational and economic characteristics of enterprises, NSSO categorized the enterprises by their location, viz. i) within household premises; ii) outside household premises - with fixed premises and with permanent structure; iii) outside household premises - with fixed premises and with temporary structure/ kiosk/ stall; iv) outside household premises but without any structure, v) mobile market and vi) without fixed premises. The paper uses the data and results of this NSS round relating to the last three categories of the location and together puts them in a group as street vendors. Strictly speaking as defined above the category with fixed premises and temporary structure may come under street vendors, however this

category has been left out, being equipped with relatively advantageous location in comparison to the categories clubbed in street vendors. It may be pointed out here that the NSSO has coined the category of enterprises without fixed premises i.e. the last (vi) category, as street vendor.

1.5. In this paper, we study the characteristics of street vendors (synonymous with street vendor enterprises) in the specific food service activities, keeping in view the importance of the later in the national economy. The characteristics of the street vendors have been compared with the characteristics of the i) food service activities(sector); ii) the otherwise located enterprises in the sector viz. the enterprises which are located within the household premises or outside with fixed premises whether with permanent structure or temporary structure / kiosk/ stall (not categorized as street vendors); and iii) the best located enterprises in the sector viz., the enterprises outside the household premises and having own fixed premise and permanent structure. The paper has been organized in the following four sections.

1.6. Section 2 describes the activities under the food services, the importance and relevance of services sector amongst the economic activities, food service activities amongst the services sector and the street vendor enterprises amongst the food service activities. Section 3 deals with composition of street vendor enterprises, their magnitude and work force employed and the age profile. Section 4 concerns with the economy of the street vendor enterprises and their contribution to GVA, growth of the street vendor enterprises and the problems faced by them in their operation. Section 5 deals with spatial distribution of the street vendor enterprises based on selected operational and economic characteristics and the performance of States/UTs and the metropolitan cities based on the composite index. Section 5 presents summary and conclusions.

2. Street Vendors and Food Service Activities

2.1. Food service activities play an important role in fulfilling the needs of the people, from supply side street vendor enterprises work as a source of employment for poor and unskilled majority and on demand side to the customers work as an addition or alternate to their home food for change of taste on affordable rates. The enterprises also work as means of socialization for the customers. It is covered in code 56 of the National Industrial Classification (NIC) 2008 relating to food and beverage service activities, which for short has been termed as food service activities and have been illustrated in the National Industrial Classification 2008 released by Central Statistics Office (CSO), Ministry of Statistics and Programme Implementation as follows:

> "Restaurants; bars with or without restaurants, cafeterias, fast-food restaurants and other food preparation in market stalls; ice-cream mobile vendors, mobile food carts; restaurants and bar activities connected to transportation, when carried out by separate units; event catering; activities of food service contractors (e.g. for transportation companies); operation of canteens (e.g. for factories, offices, hospitals or schools) on a concession basis (but departmental canteen run by Government is excluded); tea coffee shops; fruit juice bars; mobile beverage vendors." A restaurant has been defined as an enterprise which generally

provides eating and drinking services where prepared meals, food and refreshments and other snacks are sold for immediate consumption without any provision for lodging.

2.2. Table 1 and Table 2 provide the contribution of the services amongst all the economic activities, food service activities amongst the services and the street vendor enterprises amongst the food service activities.

2.3. Table 1 presents the number of enterprises, number of workers employed in such enterprises and the gross value added by the enterprises to the national economy in the services (sector) and in the food service activities of the services in rural and urban sectors together and, also in exclusive urban sector, separately. As per the NSS data of 67th round, in unorganized/ informal sector as covered by this round, services constitute 34.18% of enterprises, 36.08% workers and contributes to 36.58% gross value added to the economy. Urban scenario is similar but with slightly more contribution to the economy. In the services(sector), food service activities are the third largest contributor after land transport and other community, social and personal service activities, with 14.09% enterprises, 15.89% workers and 13.93% gross value added.

Table 1: Estimated Number of Enterprises, Workers and Estimated GVA by Broad Activity Group and Sector

	Rural + Urban			Urban		
Activity Group	Enterprises (‘000)	Workers (‘000)	GVA (crore)	Enterprises (‘000)	Workers (‘000)	GVA (crore)
All	57673	107979	635586	26782	54797	432087
Other Services (% to All)	19712 (34.18)	38961 (36.08)	231108 (36.58)	9501 (35.48)	19668 (35.89)	160339 (37.11)
Food service Activities (% to Other Services)	2777 (14.09)	6190 (15.89)	32203 (13.93)	1429 (15.04)	3630 (18.46)	22226 (13.86)

2.4. Table 2 presents location (of operation) wise distribution of enterprises and the number of workers employed by them in the food service activities. The category of enterprises with location as outside household premises with fixed premise and permanent structure is the most dominant contributor to the food service with more than 50% enterprises and employing more than 60% workers. In urban areas, this advantageous category of enterprises contributes more with 54.19% enterprises and 65.62% workers. Then there are the enterprises located within the household premise with 23.51% enterprises but relatively less, 20.51% workers. In exclusive urban areas, the share of enterprises within household premise and workers are far less with their share as 17.67% and 15.36% respectively. At the third place, we have enterprises located outside the household premises but with fixed premise and permanent structure contributing 9.65% enterprises and 7.37% workers, the urban scenario being similar with a little bit more

contribution. This is followed by the enterprises in the three sub categories of street vendors. Overall the urban share of food service activities enterprises is 51.46%, however, for the enterprises located in the household premises, this ratio comes as just 38.65% and thus this category of enterprises can be safely termed as rural phenomenon. The urban share for the category of enterprise located Outside with fixed premises and permanent structure and for Outside with fixed premises and temporary structure/kiosk/ stall are 52.45% and 54.28% respectively. However, in contrast to these, the urban share for street vendors is 67.54 and thus it can be termed as urban phenomenon.

Table 2: Estimated Number of Enterprises, Workers by Location of Enterprises in Food Service Activities and Sector (figures in brackets are the % to the food service activities)

Location	Rural + Urban		Urban	
	Enterprises	Workers	Enterprises	Workers
Within household premises	653096 (23.51)	1269285 (20.51)	252422 (17.67)	557576 (15.36)
Outside with fixed premises and permanent structure	1476348 (53.16)	3805301 (61.48)	774312 (54.19)	2382231 (65.62)
Outside with fixed premises and temporary structure/kiosk/ stall	268109 (9.65)	456259 (7.37)	145529 (10.19)	267865 (7.38)
Street Vendors				
Outside with fixed premises and without any structure	57044 (2.05)	96603 (1.56)	44584 (3.12)	75779 (2.09)
Mobile market	93548 (3.37)	172770 (2.79)	44548 (3.12)	77569 (2.14)
Without fixed premises	229270 (8.25)	389372 (6.29)	167442 (11.72)	269252 (7.42)
Total Street vendors	379862 (13.68)	658745 (10.64)	256574 (17.96)	422600 (11.64)
Total Food Service Activities Enterprises	2777415 (100.00)	6189590 (100.00)	1428837 (100.00)	3630272 (100.00)

2.5. Magnitude of Street Vendor Enterprises and Work Force Employed: As per estimates and as shown in the Tables 1 and 2, there are 27.77 lakh enterprises engaged in food service activities in the country, out of which 13.68% enterprises i.e. 3.80 lakhs enterprises are street vendors, either outside with fixed premises but without any structures or without fixed premises or mobile market. Of this 3.80 lakh street vendors, more than two third i.e. 67.54% street vendor enterprises work in the urban areas. As far as the workers are concerned, there are 6.59 lakh street vendors out of 61.90 lakh workers employed in the food service activities. As per Table 3, workers per street vendor enterprise comes out to be 1.73 in comparison to the 2.23 workers per enterprise in the food service activities and 2.58 workers per enterprise in the enterprises outside

the household premises with fixed premise and permanent structure. This coupled with the number of street vendor enterprises employing no hired worker i.e. own account enterprises as high as 92.54% of the total street vendor enterprises suggests that street vendors are predominantly individual activities without any help. Compared to this, own account enterprises in the food service activities enterprises in general and the group of enterprises having fixed location and permanent structures constitute 77.77% and 67.82% respectively. Interestingly, number of workers per street vendor enterprise in urban sector is slightly less with 1.65 workers per enterprise while in case of food service activities in general and the enterprises with fixed outside household premise and permanent structure, in particular the workers per enterprise are significantly larger 2.54 and 3.08 respectively. The best located enterprises employ hired worker more than three times the street vendors do on an average in urban sector.

Table 3: Estimated Number of Street Vendors and Enterprises with Fixed Location and Permanent Structure in Food Service Activities, Workers, Workers per Enterprise and Share of Own Account Enterprises by Sector

Parameters	Rural + Urban			Urban		
	Street Vendors	All type of enter-prises	Enterprises with fixed location and permanent structure	Street Vendors	All types of enter-prises	Enterprises with fixed location and permanent structure
Enterprises (no.)	379861	2777415	1476348	256573	1428836	774312
Workers (no.)	658739	6189590	3805301	422600	3630272	2382231
Workers/Enterprise	1.73	2.23	2.58	1.65	2.54	3.08
Own Account Enterprises as % to total no. of enterprises	92.54	77.77	67.82	93.24	69.95	56.05

2.6. Composition of Street Vendor Enterprises: As shown in Table 2, the last three categories, comprising street vendors as the subject of the study predominantly covers enterprises without fixed premises with their share in the street vendors as high as 65.26% followed by the mobile market and the enterprises located outside with fixed premises but without structure with their share of enterprises in street vendors as 24.62% and 15.02% respectively. In absolute terms, there are 57 thousand enterprises without structure, 94 thousand mobile and 2.29 lakhs without fixed premises. However, the percentage of enterprises in the urban areas in the category of outside fixed premises without structure and without fixed premises constitute as high as 78.21% and 73.03% of their numbers in the country. Only in case of mobile enterprises, the share of urban areas is less than half i.e. 47.62%. Also, that the mobile markets employ more hired workers than other two categories of enterprises in the street vendors.

2.7. Duration of Operation and Daily Engagement of Street Vendor Enterprises:Table4 presents the status of enterprise operation in terms of number of years worked, average number of months operated in the previous year and average number of hours in a day worked, for the street vendors and other differently located enterprises by sector. Years operated shows the number of years, the enterprises worked under the current ownership.

Table 4: Distribution of Enterprises with Number of Years Worked, Number of Months Operated and Number of Hours Worked by Street Vendors and Enterprises with Fixed Location and Permanent Structure in Food Service Activities by Sector

Parameters	Urban + Rural			Urban		
	Street Vendors	All type of enter-prises	Enterprises with fixed location and permanent structure	Street Vendors	All types of enter-prises	Enterprises with fixed location and permanent structure
Initial operation less than one year	4.25	6.09	7.63	3.52	6.45	7.77
Operation for less than 2 years	12.12	13.09	15.09	9.04	13.19	15.36
Operation for more than 7 years	53.81	50.52	48.49	58.51	52.84	50.03
No. of months operated	11.32	11.48	11.45	11.49	11.48	11.42
No. of hours worked	8.00	9.14	9.80	8.33	9.44	10.12

2.8. More than half of the street vendor enterprises under the current ownership are under operation for more than 7 years, the percentage of such enterprises being 53.81% of the total street vendor enterprises. In comparison to the street vendor enterprises, the percentages of overall food service activities enterprises and the enterprises with fixed location and permanent structure which have worked for more than 7 years are slightly less i.e. 50.52% and 48.49% respectively. The percentage of street vendor enterprises which have come up in the last one year is just 4.25%. Similar figures for the overall food service activities enterprises and the enterprises with fixed location and permanent structure are 6.09% and 7.63% respectively. Similar trend is in the exclusive urban sector too, however with the street vendor enterprises coming up in the last one year is relatively less than the percentages in rural areas while in case of overall food service activities enterprises and the enterprises with fixed location and permanent structure, the percentages being more than those in rural areas. This shows that on an

average the street vendor enterprises are older than otherwise located enterprises. Now the number of street vendor enterprises coming up has relatively declined in comparison to otherwise located enterprises. In urban sector this phenomenon is more visible. On one hand, the share of street vendors which have come up in the last one year and two years in urban areas are just 3.52% and 9.04% respectively, the share of the enterprises operating for more than 7 years are 58.51%.

2.9. Street vendor enterprises are perennial, working for more than 11 months in a year and on an average daily for more than 8 hours. In urban sector, they work slightly more. However, average number of hours worked is less in comparison to 9.14 hours for the overall enterprises in food services and 9.80 hours for the enterprises having fixed location and permanent structure. Similar is the trend in urban areas.

3. Economy of the Street Vendor Services and Their Contribution to GVA

3.1. Some of the key economic characteristics of the street vendor enterprises viz. expanses per enterprise, expanses receipt ratio, fixed assets owned and taken on hire per enterprise, loans outstanding per enterprise and gross value added per enterprise with the share of GVA by the street vendor enterprises in the food service activities have been presented in Table 5, studied and discussed here. Street vendors have small operation and utilize less input, spend on an average just rupees ten thousand per month which is half of the input used by food service activities enterprises in general and one third of the inputs used by the enterprises having fixed location and permanent structure. In urban sector, street vendors spend a little more i.e. rupees twelve thousand per month which is two fifth of that of the food service activities enterprises in general and two seventh of the enterprises having fixed location and permanent structure. Street vendors also manage their finances and the operations well with their expanses receipt ratio as 1.52 in comparison to 1.44 of the enterprises having fixed premise and permanent structure. However, in urban sector, the efficiency of the street vendors reduces to 1.47 which is almost same as in the case of food service activities enterprises in general. This discussion highlights about the survival of the street vendors in the urban areas where they operate in large numbers but have the same efficiency as that of other enterprises in the food service activities. Either the input cost is higher or the profit margin is low. The poor entrepreneurs migrate to the urban areas just to live on subsistence return. Return is higher in rural areas.

3.2. Loan outstanding in case of street vendors is just Rs.700 per enterprise which comes out to be ten times in case of the food service enterprises in general and seventeen times in case of enterprises with fixed location and permanent structure. In exclusive urban areas, loan outstanding for street vendors is slightly more as Rs.800 per enterprise but far less than Rs.17838 for the enterprises with fixed location and permanent structure. Thus, it may look like that the street vendors do not need much investment, or they do not want to expand their operation. However, as it will be made clear subsequently in the next section, that they do not

get the desired amount of loan easily and this is the second most prominent problems they face in their operation.

Table 5: Estimated GVA, Outstanding Loans, Assets Owned and Other Key Characteristics of Street Vendors and Enterprises with Fixed Location and Permanent Structure in Food Service Activities by Sector

Input	Urban + Rural			Urban		
	Street Vendors	All type of Enter-prises	Enterprises with fixed location and permanent structure	Street Vendors	All type of Enter-prises	Enterprises with fixed location and permanent structure
GVA (Rs. lakh)	235038	3220303	2341187	170159	2222569	1687038
GVA/enterprise (Rs.)	61875	115946	158580	66320	155551	217876
Loan outstanding (Rs. lakh)	2664	202745	179845	2040	152662	138125
Loan outstanding/ enterprise	701	7300	12182	795	10684	17838
Assets owned (Rs. lakh)	505597	4758589	3365271	479921	3751936	2697508
Assets Owned/ enterprise	133100	171332	227946	187051	262587	348375
Assets hired (Rs. lakh)	62467	4623730	4138488	59810	3888273	3490827
Assets hired/enterprise(Rs.)	16445	166476	280319	23311	272129	450830
Expanses/ enterprise (Rs.)	120078	259224	366684	142056	344355	492730
Expanses receipt ratio	1.52	1.45	1.44	1.47	1.46	1.45

3.3. As far as assets owned by the enterprises is concerned, the street vendor enterprises on an average have assets owned worth Rs.1.33 lakhs, in comparison to the assets worth Rs.2.28 lakhs owned by the enterprises operating from the fixed premises and permanent structure. In urban sector, street vendors own assets worth Rs.1.87 lakh in comparison to Rs.3.48 lakh on an average owned by the enterprises with fixed premises and permanent structure. However, there is vast difference between the assets hired per enterprise, by the street vendors (just Rs.16445) in comparison to that of Rs.2.80 lakhs by the enterprises having fixed location and permanent structure. In urban sector, assets hired by street vendors and the enterprises having fixed premise

with permanent structures are Rs.23311 and 4.51 lakhs respectively. It seems that street vendors are unable to get the hired assets rather their scale of operation is relatively so small that they are unable to afford hired assets. The enterprises having fixed location and permanent structure have assets hired worth more than that of the assets owned. Obviously, their scale of operation, gives them more profit to pay for the rents of the assets hired.

3.4. Street vendor enterprises contribute Rs.2350 crore to the GVA which is 7.30% of the GVA by the food service activities in the country. In comparison to this, the enterprises with fixed location and permanent structure contributes72.70% of the GVA. In urban sector, the percentage contribution is 7.66% and 75.90% respectively. However, the average contribution to GVA per enterprise by the street vendors is Rs.62 thousand in comparison to similar figure of Rs.1.59 lakh for the enterprises with fixed location and permanent structures. In case of urban sector, the GVA contribution for the enterprises with fixed location and permanent structure is 2.18 lakhs while for street vendors it is just Rs.66 thousand. Thus, there is not much difference between the GVA contribution by the street vendors in rural and urban areas, however there is marked increase in the GVA contribution by the enterprises with fixed location and permanent structure from rural to urban areas.

3.5.Female Participation: There are two indicators as shown in Table 6, viz. ownership of the enterprise in terms of female proprietorship and female workers in the enterprises including the female proprietary enterprises which reflect the female participation in the enterprises. In terms of female workforce, street vendors have far better female participation, 27.13% in comparison to just 13.58% female workers in the enterprises with fixed location and permanent structure and overall 18.98%. in food service activities. Female work force in urban sector are uniformly on lower side. Street vendor enterprises employ just 22.15% female workers, still much more than just 10.07% for the enterprises with fixed premise and permanent structure and overall 15.33% for the food service activities enterprises. Here is the importance of the street vendors which uses the female workforce effectively and probably for better food taste which might not be available with other enterprises.

3.6 In terms of female proprietorship, the difference in female participation across the food service activities is not so alarming. Street vendor enterprises have 8.03% female proprietors in comparison to 6.41% in the enterprises having fixed location and permanent structure. In urban sector these figures are slightly less with 7.26% and 5.53% respectively for the street vendor female proprietors and female proprietors in the enterprises with outside fixed premises and permanent structure. Table 6 also contains the key economic characteristics of the female proprietary enterprises concerning food service activities in general and exclusive street vendors and the enterprises with outside premise and permanent structure.

Table 6: Female Participation and Key Characteristics of Enterprises Owned by Female Proprietary Street Vendors and Such Enterprises with Fixed Location and Permanent Structure in Food Service Activities by Sector

Input	Total			Urban		
	Street Vendors	All type of Enter-prises	Enterprises with fixed location and permanent structure	Street Vendors	All type of Enter-prises	Enterprises with fixed location and permanent structure
Female workers (%)	27.13	18.98	13.58	22.15	15.33	10.07
Female proprietary street vendors						
Enterprise owned (% to total enterprises)	8.03	9.68	6.41	7.26	9.27	5.53
Female workers (% to workers)	92.47	76.91	65.80	89.63	72.46	58.38
Workers/enterprise	1.38	1.72	2.06	1.13	1.77	2.29
GVA/ enterprise (Rs.)	36606	60633	92617	43674	80161	136846
Loan outstanding/ enterprise (Rs.)	100	2349	4645	159	2878	7278
Assets Owned/ enterprise (Rs.)	14962	89639	125519	11724	133450	215871
Assets hired/ enterprise (Rs.)	14871	54404	108912	23112	89544	186655
Expanses/ enterprise (Rs.)	92166	144355	228965	119459	182437	318903
Expanses receipt ratio	1.40	1.42	1.41	1.37	1.44	1.43

3.7. As expected, being female headed enterprises, the workers in such female proprietary enterprises are predominantly female, the percentage of female workers being 92.47% for the street vendor enterprises and comparatively less 65.80% for the enterprises located in fixed premises and with permanent structure. In urban sector, the scenario is same, however with slightly less female participation, the percentage of female workers constituting 89.63% for street vendor enterprises and 58.38% for the enterprises located in fixed premises and with permanent structure. In the food service activities in general headed by female enterprises, percentage of female workers in the country is 76.91% and in urban sector, it is 72.46%. Comparison of the characteristics of street vendor enterprises owned by female proprietors and those with food service activities in general reveal that female proprietor street vendor enterprises employ less hired workers (almost half),own very little assets (just one sixth) per enterprise. However, their contribution to GVA per enterprise is also very less, a little more than half in comparison to food service activities in general.

3.8. The efficiency of the female proprietary street vendor enterprises (1.40) is almost the same as that of female proprietary food service enterprises in general (1.42) and that of female proprietary enterprises with fixed premise and permanent structure (1.41). However, in urban sector, the efficiency of the female proprietor street vendors (1.37) is less than that of female proprietary food service enterprises in general (1.44) and female proprietary enterprises with fixed premise and permanent structure (1.43). Female proprietary street vendor enterprises are also less efficient (1.40) than street vendor enterprises in general (1.52), in urban sector, their efficiencies being 1.37 and 1.47 respectively.

3.9. The ratio of some of the other economic characteristics for a normal female proprietary street vendor enterprise and street vendor enterprise with any ownership are 1:1.9 for hired workers, 1.1.7 for GVA, 1:7 for loans outstanding, 1:9 for assets owned and 1:1.3 for expanses. These ratios for exclusive urban sector are 1:5 for hired workers, 1:1.5 for GVA, 1:5 for loans outstanding, 1:16 for assets owned and 1:1.2 for expanses, however, the assets hired per enterprise is approximately the same for the female proprietary street vendor and street vendor with any ownership enterprises.

3.10. Registration and Maintenance of Accounts: Table 7 depicts the status of street vendor enterprises vis-à-vis other enterprises regarding their registration and maintenance of accounts. It reveals that street vendor enterprises are generally unregulated with only 3.50% enterprises registered in comparison to 26.23% enterprises registered in food service activities enterprises in the country. Percentage of registered enterprises in case of enterprises with fixed location and permanent structure is handsome 38.08%. Registration of enterprises in the exclusive urban sector is slightly better with 4.68% for street vendors and 30.99% for food service activities enterprises in general. It has also been found that the street vendor enterprises are mostly registered under municipal corporation/ panchayat and local body acts, the percentage of such registered street vendor enterprises being as large as 94.18%. In urban sector, percentages of such registered street vendors are 95.68%.

3.11. It may be mentioned here that notification for food safety and standards regulation under the Food Safety and Standards Authority of India (FSSAI) was only brought put in 2011 and therefore the NSS survey of 67th round and resultantly this paper could not find any registration under the said act.

3.12. As far as the maintenance of accounts are concerned, the status of street vendors is worse with only 0.85% street vendor enterprises and overall 4.55% food service activities enterprises maintaining their accounts. The position in the exclusive urban sector is slightly worse in case of street vendors and slightly better in case of overall enterprises with the percentages found as 0.74% and 6.08% respectively.

Table 7: Percentage of Registered Street Vendors and Enterprises with Fixed Location and Permanent Structure in Food Service Activities and Those Maintaining Accounts by Sector

Input	Total			Urban		
	Street Vendors	All type of Enter-prises	Enterprises with fixed location and permanent structure	Street Vendors	All type of Enter-prises	Enterprises with fixed location and permanent structure
Registered	3.50	26.23	38.08	4.68	30.99	46.97
Accounts maintained	0.85	4.55	7.11	0.74	6.08	9.57
	Major Acts under which Registered with %ge from Total Registered					
Shops and Establishment Act	0.37	25.22	28.92	0.41	34.88	38.97
Municipal Corporation/ Panchayat/ Local Body Act	94.18	84.54	83.41	95.68	82.36	81.09
VAT/Sales Tax Act	1.29	5.84	7.14	1.43	7.80	8.88
Other Acts	6.05	16.93	18.17	4.57	18.12	19.38

3.13. Problems faced by Street Vendors in their Operation and their Growth: Distribution of street vendors and other enterprises with respect to the most severe problems faced by them in their operations has been presented in Table 8 and analyzed here. NSSO in its survey had identified problems of power cut, shortage of raw material, shrinkage/ fall of demand, credit problem, non-recovery of dues and labor problem as the potential problem regarding which they collected the response and clubbing all other problems in one group “Others”. However, more than two-third of street vendors and for that reasons any other enterprise in food service activities irrespective of rural and urban sector, could not categorize their main problems from amongst the alternatives available and asked for. Their main problems were as such categorized as “Others”, details of which could not be ascertained. It seems these unsaid unspecified problems relate to availability of infrastructure and the law and order issues which the food service activities face severely in their operation. As far as other severe problems are concerned, as expected, the street vendor enterprises do not have problems with shortage of raw materials, power cuts and labor. Main problems they face are the availability of credit and shrinkage/ fall of demand. In this regard, the role of bank and other lending institutions are crucial.

3.14. The credit problem differentiates sharply the street vendors and other enterprises, while one fifth of the street vendors report this as main severe problem, only 8.83% overall and 6.16% enterprises with fixed premise and permanent structure say so. The magnitude of this problem is

almost the same in exclusive urban sector for the food service activities enterprises including street vendors, however slightly reduced. The next severe problem i.e. shrinkage/ fall of demand is faced by the street vendors and others alike, probably due to restaurants in the organized sector coming in a big way and affecting the operations of the unorganized sector in the food service activities. This must have shrunk the demand otherwise to the street vendors and other enterprises in the unorganized sector. The third and fourth severe problems faced by the enterprises is non-recovery of dues and labor problems which increase with the increase of business as reflected by the location of enterprises.

Table 8: Percentage Distribution of Street Vendors and Enterprises with Fixed Location and Permanent Structure in Food Service Activities by Nature of Problems Faced in Operation by Sector

Input	Rural + Urban			Urban		
	Street Vendors	All type of Enter-prises	Enterprises with fixed location and permanent structure	Street Vendors	All type of Enter-prises	Enterprises with fixed location and permanent structure
Power cuts	0.10	2.51	3.22	0.14	2.66	3.56
Shortage of raw materials	0.35	0.78	0.72	0.52	0.39	0.38
Shrink/ fall of demand	9.47	8.62	8.53	7.26	6.91	5.37
Credit problems	19.14	8.83	6.16	18.08	7.49	4.46
Non recovery of dues	2.92	5.96	5.35	3.12	3.72	2.88
Labour problems	0.55	2.31	3.94	0.61	3.28	4.90
Others	67.46	70.99	72.85	70.27	75.54	78.44

3.15. Despite one of the severe problems faced by the enterprises in unorganized sector as shrinkage/ fall of demand as reported by them, more than one fourth of the street vendors say that their business has expanded in the last three years. The scenario for the enterprises with fixed location and permanent structure is much better as almost one-third of such enterprises have reported that their business has expanded in the last three years. Similar perception is in the case of exclusive urban sector too. In contrasts to these, only 6.77% (7.39% in urban sector) street vendors perceive their business as contracting in the last three years. This aspect of perception of the enterprises about their activities is presented in Table 9.

Table 9: Percentage Distribution of Street Vendors and Enterprises with Fixed Location and Permanent Structure in Food Service Activities by Their perception about the Operation by Sector

Input	Rural + Urban			Urban		
	Street Vendors	All type of Enter- prises	Enterprises with fixed location and permanent structure	Street Vendors	All type of Enter- prises	Enterprise s with fixed location and permanent structure
Contracting	6.77	5.46	5.50	7.39	5.87	4.98
Expanding	26.93	34.51	34.75	27.64	34.19	38.05

3.16. Survey on unincorporated non-agriculture service sector enterprises was also conducted by NSSO during its 63rd round (July 2006-June 2007) of socio economic survey. Table 10 presents the distribution of the enterprises with number of workers employed and GVA contributed to the food service activities during 2006-07 and 2010-11 and the growth in the period of four years between them. Number of enterprises has grown from mere 19.90 lakh to 27.77 lakh in this period. In percentage term, the growth in number of enterprises and the workers in the food service activities stand at 39.54% and 31.89% respectively. Number of workers per enterprise has however, reduced from 2.36 to 2.22 in the food service activities. In exclusive urban sector the increase in the enterprises and workers are 52.33% and 38.96% respectively. Similarly, there is increase in GVA in absolute terms and GVA per enterprise. GVA per enterprise has grown by 31.52% overall and 20.12% in urban areas. This also indicates that the contribution of the food service activities in rural areas to GVA has increased from Rs.51326 lakhs to Rs.73984 lakh thus by 44.15% in four years. Further as far as street vendors are concerned, their number has increased from mere 1.85 lakhs in 2006-07 to 3.80 lakhs in 2010-11, thus by 105.21% in four years. Similar is the pattern of growth in urban sector too. The percentage of the street vendors in the food service activities has grown from mere 9.30% to a healthy percentage of 13.68% in 2010-11. In exclusive urban sector, the share of street vendors was 13.40% in 2006-07 which has increased to 17.96% in 2010-11.

Table 10: Growth in Estimated Number of Enterprises in Food Service Activities and Share of Street Vendors, Workers and Estimated GVA during 2006-2011 by Sector

	Rural + Urban			Urban		
Parameter	2006-07	2010-11	Growth	2006-07	2010-11	Growth
	Food service activities					
Enterprises (no.)	1990393	2777415	39.54	938004	1428836	52.33
Workers (no.)	4693097	6189590	31.89	2612379	3630272	38.96
Workers/enterprise	2.36	2.23	-	2.79	2.54	-
GVA (Rs. lakh)	1754750	3220303	83.52	1214596	2222569	82.99
GVA/enterprise(Rs.)	88161	115950	31.52	129487	155550	20.12
Street vendors and their share in food service activities						
Enterprises (no.)	185107	379861	105.21	125693	256573	104.13
Share of street vendors	9.30	13.68	-	13.40	17.96	-

4. Spatial Distribution of the Street Vendor Enterprises

4.1. Table 11 presents the availability of food services and the population served by the food service activities enterprises by State/UT and sector. At all India level on an average, one enterprise serves 436 persons while in exclusive urban sector, there is one enterprise for every 264 persons. At the State level, in terms of availability of food services, Goa (201 persons) ranks first followed by Daman and Diu (219 persons), Meghalaya (221 persons) and Tamil Nadu (254 persons). On other side, the less served States/UTs are Nagaland (1959 persons), Arunachal Pradesh (1421 persons), Mizoram (1110 persons) and Chhattisgarh (780 persons). As far as exclusive urban sector is concerned, Himachal Pradesh (110 persons) stands first in availability of food services followed by West Bengal (191 persons), Tamil Nadu (195 persons) and Uttarakhand (226 persons). On other side less served States/UTs are Nagaland (1152 persons), Mizoram (995 persons), Arunachal Pradesh (683 persons) and Tripura (559 persons). The States and UTs differ widely in availability of food services in unorganized sector.

Table 11: State/UT wise Population, Number of Enterprises involved in Food Service Activities and Persons served per Enterprise by Sector

State/UT	Rural + Urban			Urban		
	Population 2011	No. of Enter-prises	Persons served/ Enter-prise	Population	No. of Enter-prises	Persons served/ Enter-prise
Andhra Pradesh	84665533	255631	331	28353745	117795	241
Arunachal Pradesh	1382611	973	1421	313446	459	683
Assam	31169272	71678	435	4388756	11105	395
Bihar	103804637	163575	635	11729609	33294	352
Chandigarh	1054686	3937	268	1025682	3767	272
Chhattisgarh	25540196	32739	780	5936538	12899	460
Delhi	16753235	61803	271	16333916	60866	268
Goa	1457723	7246	201	906309	2660	341
Gujarat	60383628	121805	496	25712811	94426	272
Haryana	25353081	51992	488	8821588	34379	257
Himachal Pradesh	6856509	18848	364	688704	6249	110
Jammu and Kashmir	12548926	21751	577	3414106	10686	319
Jharkhand	32966238	89144	370	7929292	27813	285
Karnataka	61130704	162613	376	23578175	82617	285
Kerala	33387677	96515	346	15932171	30191	528
Madhya Pradesh	72597565	111143	653	20059666	64916	309
Maharashtra	112372972	267745	420	50827531	175146	290
Manipur	2721756	6636	410	822132	3520	234
Meghalaya	2964007	13400	221	595036	2096	284
Mizoram	1091014	983	1110	561977	565	995
Nagaland	1980602	1011	1959	573741	498	1152
Odisha	41947358	110954	378	6996124	32559	215
Punjab	27704236	44961	616	10387436	33845	307
Rajasthan	68621012	89218	769	17080776	45419	376
Sikkim	607688	1764	344	151726	624	243
Tamil Nadu	72138958	283572	254	34949729	179163	195
Tripura	3671032	6547	561	960981	1718	559
Uttar Pradesh	199581477	352702	566	44470455	188986	235
Uttarakhand	10116752	36114	280	3091169	13689	226
West Bengal	91347736	282716	323	29134060	152601	191
A and N Islands	379944	1074	354	135533	392	346
Dadra and Nagar Haveli	342853	729	470	159829	280	571
Daman and Diu	242911	1110	219	182580	427	428
Lakshdweep Islands	64429	190	339	50308	98	513
Puducherry	1244464	4595	271	850123	3088	275
India	1210193422	2777415	436	377105760	1428836	264

4.2. State/UT wise distribution of street vendor enterprises and their key operational and economic characteristics have been shown in Table 12. The table also contains the performance score of the individual States/UTs and their rank in terms of concentration of enterprises, their employment generating capacity, efficiency and contribution to economy. Table 13 contains similar information with respect to street vendors in exclusive urban sector.

Table 12:State/UT wise Estimated Number of Street Vendors, their Share in Food Service Activities, Estimated GVA, their Share in GVA of Food Service Activities, Workers per Enterprise, Female Participation, Receipt Expanses Ratio and Performance Score and Ranks of the States/UTs – Rural + Urban

State/UT	No. of Street Vendors	% Share of Street Vendors	Workers/ Street Vendors	% of Female workers	Receipt/ expanses	GVA (Rs.'000)	% Share of GVA	Performance Score	Rank
Andhra Pradesh	10761	4.21	2.13	34.87	1.49	1053747	3.32	61.81	20
Arunachal Pradesh	4	0.41	3.00	33.33	1.36	230	0.17	71.68	27
Assam	3932	5.49	1.55	23.58	1.43	222559	4.01	68.77	25
Bihar	5743	3.51	1.84	10.88	1.97	371005	3.64	61.68	19
Chhattisgarh	5688	17.37	1.91	36.13	1.45	323201	9.45	46.20	8
Delhi	10902	17.64	1.73	17.90	1.68	1163736	7.09	49.55	11
Gujarat	30313	24.89	1.85	14.38	1.52	1987158	13.50	44.68	7
Haryana	7877	15.15	1.39	5.48	1.72	729692	10.81	55.60	16
Himachal Pradesh	544	2.89	1.08	6.01	2.50	21264	1.06	67.51	24
Jammu and Kashmir	681	3.13	2.52	0.00	3.10	83588	3.09	53.65	15
Jharkhand	19104	21.43	1.72	60.14	1.60	634534	10.26	36.11	2
Karnataka	13545	8.33	1.77	13.83	1.55	1262668	4.43	64.36	22
Kerala	1822	1.89	2.92	18.16	1.54	245308	1.16	68.93	26
Madhya Pradesh	12348	11.11	1.50	18.78	1.53	631214	7.93	59.10	17
Maharashtra	29226	10.92	1.98	26.51	1.78	2768323	5.73	49.25	10
Manipur	15	0.23	1.00	0.00	2.39	971	0.22	76.53	28
Meghalaya	877	6.54	1.69	75.58	1.29	35740	3.61	61.99	21
Odisha	15320	13.81	2.04	21.66	1.53	827073	9.66	50.32	12
Punjab	10850	24.13	1.46	17.59	1.59	790629	17.23	43.80	5
Rajasthan	12409	13.91	2.02	15.34	1.83	1030251	12.06	44.23	6
Sikkim	20	1.13	1.00	0.00	1.48	1186	0.47	92.18	30
Tamil Nadu	30540	10.77	1.92	39.93	1.48	2852832	6.34	52.45	13
Tripura	260	3.97	1.50	37.67	1.55	8934	2.62	65.17	23

Uttar Pradesh	118749	33.67	1.64	28.68	1.37	4797689	20.87	39.32	3
Uttarakhand	2297	6.36	1.75	15.17	2.31	192458	6.62	49.23	9
West Bengal	33281	11.77	1.29	30.11	1.41	1319039	7.01	60.70	18
A and N Islands	104	9.68	2.03	43.83	1.52	11313	4.83	52.46	14
Chandigarh	1909	48.49	2.64	20.03	2.27	101531	16.77	16.69	1
Daman and Diu	73	6.58	1.41	0.00	1.51	4620	1.92	79.42	29
Puducherry	667	14.52	2.74	39.43	1.68	31288	5.87	41.40	4
All India	379861	13.68	1.73	27.13	1.52	23503781	7.30	52.92	-

4.3 The most populated state Uttar Pradesh has the maximum number of street vendors (1.19 lakh) followed by four States having enterprises in the range of 29-33 thousand i.e. West Bengal (33281), Tamil Nadu (30540), Gujarat (30313) and Maharashtra (29226). On the lower side, Mizoram, Nagaland, Goa, Dadra and Nagar Haveli, Lakshadweep Islands and Arunachal Pradesh, Manipur and Sikkim have insignificant number of street vendors. In terms of GVA, the main contributor to the national economy is Uttar Pradesh with Rs.480 crore followed by Tamil Nadu with Rs.285 crore and Maharashtra Rs.277crore. As far as contribution to GVA by street vendors as percentage to the GVA contributed by the food service activities in the States/UTs are concerned, it is maximum in Uttar Pradesh 20.87% followed by Punjab 17.23%, Chandigarh 16.77%, Gujarat 13.50% and Haryana 10. 81% which stand at much better place than all India average of 7.30%.

4.4 Concentration of street vendors in the food service activities sector within the respective State/UT is maximum for Chandigarh 48.49% followed by Uttar Pradesh 33.67%, Gujarat 24.89%, Punjab24.13% and Jharkhand 21.43%. On the other side, major States having street vendors less than 5% of the enterprises in the food service activities are Kerala 1.89%, Himachal Pradesh 2.89%, Jammu and Kashmir 3.13%, Bihar 3.51% and Andhra Pradesh 4.21%. Workers per street vendor enterprise is maximum in Arunachal Pradesh 3.00 followed by Kerala 2.92%, Puducherry 2.74%, Chandigarh 2.64%, and Jammu and Kashmir 2.52%.

4.5 As far as the female participation in the street vendor enterprises is concerned, it is maximum 75.58% in Meghalaya followed by Jharkhand 60.14%, Andaman Nicobar Islands 43.83%, Tamil Nadu 39.93%, Puducherry 39.43% and Tripura 37.67%. Jammu and Kashmir, Manipur, Sikkim and Daman and Diu have insignificant female participation in street vendor enterprises.

4.6.Composite Index: The Performances of States/UTs regarding the relevance, utility and efficiency of the street vendor enterprises in the food service activities have been evaluated based on composite index with five crucial variables viz., share of street vendors in the food service activities enterprises in the State, workers per street vendor enterprise, percentage of female workers in the street vendor enterprise, contribution of street vendors to the GVA by the food service activities enterprises in the State and the efficiency of street vendor enterprises in terms of receipt expanses ratio. The first variable denotes the concentration of street vendors in food service activities, second the employment opportunity, third the engagement of females, the out of work force and unemployed lot, fourth the contribution of the street vendors to the economy and the fifth for the efficiency of the street vendor enterprises in the State/UT.

As per the methodology of composite index, at first each of the variables are transformed into standardized indicators.

$Z_{ij} = \left(X_{ij} - \widehat{X_j}\right)/S_j$ where X_{ij} are the jth indicator for the ith State/UT, j=1,2,…5

Then the best value of each indicator which may have maximum or minimum value of the indicator across the States/UTs is identified. Here in this case, the State/UT having maximum value of the indicators have been taken as the best State, thus more street vendors in the food service activities, more workers, more female participation, more contribution of street vendors to GVA by the food service activities and more efficient street vendor enterprise indicates better performed State/UT. We calculate squared standardized deviations from the best value for each indicator as

$P_{ij} = \left(Z_{ij} - Z_{0j}\right)^2$ where Z_{0j} is the best value of the indicator

The different squared standardized deviations are then combined together by assigning the weights inversely proportional to the coefficient of variation of the standardized deviation. We calculate the pattern of efficiency for all the indicators together combined as:

$C_i = \sqrt{\sum_{j=1}^{5} P_{ij}/CV_j}$ where CV_j are the Coefficient of Variation for the jth indicator

There after the composite index have been calculated as

Composite Index $D_i = 100 * C_i/C$ where $C = \bar{C} + 3S_d$

$\bar{C}$ is average and S_d standard deviation of the C_i

Smaller value of D_i indicates high value of efficiency and resultantly the relevance, utility and efficiency of the street vendor enterprises in the State/UT.

Table 13: State/UT wise Estimated Number of Street Vendors, their Share in Food Service Activities, Estimated GVA, their Share in GVA of Food Service Activities, Workers per Enterprise, Female Participation, Receipt Expenses Ratio and Performance Score and Ranks of the States/UTs – Urban

State/UT	No. of Street Vend ors	% Share of Street Vendors	Workers / Street Vendor	% of Female workers	Rec eipt/ expenses	GVA (Rs.'000)	% Share GVA	Performance Score	Rank
Andhra Pradesh	8547	7.26	2.21	36.13	1.45	876499	4.01	64.44	15
Arunachal Pradesh	4	0.87	3.00	33.33	1.36	230	0.28	69.15	20
Assam	1170	10.54	1.22	6.13	1.72	59816	4.80	77.03	28
Bihar	1390	4.17	1.93	13.73	1.91	102651	3.39	64.93	16
Chhattisgarh	2154	16.70	1.98	56.65	1.65	181283	7.96	48.89	4
Delhi	10867	17.85	1.73	17.89	1.68	1160707	7.17	61.77	13
Gujarat	29677	31.43	1.84	14.64	1.51	1945882	17.09	57.85	8
Haryana	4842	14.08	1.59	7.76	1.60	546975	10.98	69.19	21
Himachal Pradesh	145	2.32	1.24	19.54	1.82	9352	0.82	76.66	27
Jammu and Kashmir	147	1.38	1.91	0.00	3.35	24261	1.43	57.86	9
Jharkhand	6085	21.88	1.45	5.14	1.48	274662	7.74	74.03	26
Karnataka	12197	14.76	1.70	13.79	1.51	1091802	4.87	71.23	23
Kerala	1211	4.01	2.50	13.47	1.48	146528	1.50	72.58	24
Madhya Pradesh	10328	15.91	1.53	20.04	1.55	543945	9.74	66.40	18
Maharashtra	24599	14.04	1.59	13.70	1.60	1928433	4.94	70.40	22
Meghalaya	60	2.86	1.78	100.00	1.56	3090	1.25	61.26	12
Odisha	5632	17.30	2.27	39.06	1.44	315107	9.11	55.34	5
Punjab	8746	25.84	1.48	17.67	1.59	691408	19.20	60.01	10
Rajasthan	8294	18.26	1.86	21.43	1.68	674444	13.22	55.94	6
Sikkim	20	3.21	1.00	0.00	1.48	1186	0.69	96.83	29
Tamil Nadu	23194	12.95	1.73	41.13	1.41	1981243	5.87	65.07	17
Tripura	190	11.06	1.66	37.89	1.61	7166	7.68	60.80	11
Uttar Pradesh	74972	39.67	1.49	18.57	1.33	3424308	22.30	64.01	14
Uttarakhand	2173	15.87	1.76	15.94	2.49	181357	13.35	43.95	2
West Bengal	17283	11.33	1.28	41.63	1.37	704880	5.52	73.05	25
A and N Islands	68	17.35	1.82	45.45	1.52	7856	5.84	57.72	7
Chandigarh	1909	50.68	2.64	20.03	2.27	101531	17.58	28.71	1
Daman and Diu	10	2.34	4.00	0.00	1.60	3099	2.77	68.99	19
Puducherry	659	21.34	2.56	42.64	1.57	26163	8.46	46.91	3
All India	256573	17.96	1.65	22.15	1.47	17015865	7.66	66.77	-

4.7. On analysis of the performance score and the resultant rank of the States/UTs, the most performed State/UT is Chandigarh followed by Jharkhand, Uttar Pradesh, Puducherry and Punjab. Chandigarh has Maximum share of enterprises as street vendors (48.49%), fourth State in terms of workers/ enterprise 2.64, fourth in terms of receipt expanses ratio 2.27 and the third state in terms of contribution to GVA by the street vendors in the State. On lower side, the worst State is Sikkim preceded by Daman and Diu, Manipur, Arunachal Pradesh and Kerala.

4.8. Spatial Distribution of the Street Vendor Enterprises in Urban Areas: In exclusive urban sector, State/UT wise distribution of street vendor enterprises and their key operational and economic characteristics have been shown in Table 13. The table also contains the performance score of the individual States/UTs and their rank in terms of concentration of enterprises, their employment generating capacity, efficiency and contribution to economy. As in case of total geographical (urban and rural) area together, the most populated state Uttar Pradesh has the maximum number of street vendors (74972) followed by Gujarat (29677), Maharashtra (24599), Tamil Nadu (23194) and West Bengal (17283).Share of street vendors in the food service activities sector within the respective States/UTs is maximum for Chandigarh 50.68% followed by Uttar Pradesh 39.67%, Gujarat 31.43%, Punjab 25.84% and Jharkhand 21.88%. On other side, major States having street vendors less than 5% of the enterprises in the food service are Jammu and Kashmir 1.38%, Himachal Pradesh 2.32%, Kerala 4.01% and Bihar 4.17%.

4.9. Based on the two Tables 12 and 13, we also find that the States/UTs, wherein the urban share of street vendor enterprises is more than 95% are Arunachal Pradesh, Sikkim and Chandigarh with 100% share, followed by Delhi 99.68%, Puducherry 98.80%, Gujarat 97.90%. The State where in Street vendors are limited to rural areas is Manipur. As far as the female participation in the street vendor enterprises is concerned, it is maximum 100% in Meghalaya followed by Chhattisgarh 56.65%, Andaman and Nicobar Islands 45.45%, Puducherry 42.64% and West Bengal 41.63%. Jammu and Kashmir, Sikkim and Daman and Diu have insignificant female participation in street vendor enterprises.

4.10. In terms of GVA, the main contributor to national economy is Uttar Pradesh with Rs.342crore followed by Tamil Nadu worth Rs.198crore, Gujarat worth Rs.195 crore and Maharashtra worth Rs.Rs.193crore. As far as contribution to GVA by street vendors as percentage to the GVA contributed by the food service activities in the States/UTs are concerned, it is maximum in Uttar Pradesh 22.30% followed by Punjab 19.20%, Chandigarh 17.58% and Gujarat 17.09%.

4.11. Overall in urban areas, the most performed State/UT is Chandigarh followed by Uttarakhand, Puducherry, Chhattisgarh and Odisha. The least performed States are Sikkim, Assam, Himachal Pradesh, Jharkhand and West Bengal in ranking.

4.12. Food Service Activities in States/UTs Having Less Than 5% Street Vendors: Discussions based on Tables 12-13 reveals that there are a few States/UTs where street vendor enterprises are less than 5% of the total number of enterprises in the food service activities. Such States/UTs include the north-eastern States, some geographically smaller States/UTs and some having difficult terrain to move around. However, there are some major States in the group, like Andhra Pradesh and Bihar. Composition of food service activities enterprises in these States have been presented in Table 14. Andhra Pradesh, Bihar, Manipur and Mizoram have more than 35% enterprises located inside the household premises against 23.51% such enterprises at all India level. It seems that food service activities inside the household premises are common in these States/UTs. They provide low priced food to the customers and compete with street vendors. Such enterprises have also been found as female headed. Another group of States/UTs having less number of street vendors include Himachal Pradesh, Jammu and Kashmir, Tripura, Daman and Diu and Lakshadweep Islands where the enterprises located in outside fixed premises and permanent structure are more than 85% of the total number of enterprises in the State/UT. In Bihar, Meghalaya and Dadra and Nagar Haveli, more than 10% enterprises are located in outside fixed premises with temporary structure. These compete with street vendors effectively. Similar composition of the food service activities enterprises exists in the urban areas too.

Table 14: State/UT wise Estimated Number of Enterprises by Location of Enterprises in Food Service Activities for the States/UTs where Street Vendors are less than 5% of Total Enterprises

State/UT	Food Service Activities Enterprises	Within Household Premises	Outside with Fixed Premises Permanent Structure	Outside with Fixed Premises Temporary Structure	Street Vendors
Rural and Urban					
Andhra Pradesh	255631	42.77	45.98	7.03	4.21
Arunachal Pradesh	973	29.71	64.89	4.99	0.41
Bihar	163575	41.51	40.40	14.58	3.51
Goa	7246	13.73	86.27	-	-
Himachal Pradesh	18848	7.27	85.65	4.19	2.89
Jammu and Kashmir	21751	5.18	86.59	5.10	3.13
Kerala	96515	14.56	80.02	3.53	1.89
Manipur	6636	42.93	51.26	5.58	0.23
Mizoram	983	35.32	61.38	3.30	-
Nagaland	1011	14.88	84.15	0.97	-
Sikkim	1764	31.05	67.16	0.64	1.15
Tripura	6547	3.23	86.39	6.41	3.97
Uttarakhand	36114	23.26	62.24	8.14	6.36

Dadra and Nagar Haveli	729	17.87	72.08	10.04	-
Lakshadweep Islands	190	3.84	87.37	8.79	-
Urban					
Arunachal Pradesh	459	27.52	66.16	5.45	0.87
Bihar	33294	27.65	53.78	14.40	4.17
Goa	2660	18.59	81.41	-	-
Himachal Pradesh	6249	2.92	86.87	7.90	2.32
Jammu and Kashmir	10686	2.05	86.47	10.11	1.37
Kerala	30191	8.10	82.52	5.37	4.01
Manipur	3520	38.53	57.60	3.86	-
Meghalaya	2096	5.88	78.52	12.72	2.88
Mizoram	565	24.82	75.18	-	-
Nagaland	498	18.64	81.36	-	-
Sikkim	624	20.40	74.55	1.80	3.25
Dadra and Nagar Haveli	280	12.13	75.54	12.33	-
Daman and Diu	427	-	91.55	6.13	2.32
Lakshadweep Islands	98	7.46	77.61	14.93	-

4.13. Street Vendor Enterprises in the Metropolitan Cities: In the NSS 67th round of socio economic survey, metropolitan cities as per census 2001 have been treated as separate strata and therefore estimates are available for various parameters of food service activities and the operational and economic characteristics of street vendor enterprises. Table 15 presents distribution of street vendor enterprises and their key operational and economic characteristics across the 27 metropolitan cities having population more than million. The table also contain the performance score of the individual metropolitan city and their rank in terms of concentration of enterprises, their employment generating capacity, efficiency and contribution to economy.

Metropolitan cities as a whole, contain the population of 9.37 crore, the two metros Mumbai and Delhi each having more than 1 crore population. They jointly have 82708 street vendor enterprises and contribute Rs.593 crore to GVA.

Table 15: Metropolitan City Wise Estimated Number of Street Vendors, their Share in Food Service activities, Estimated GVA, their Share in GVA of Food Service Activities, Workers per enterprise, Female Participation, Receipt Expenses Ratio and Performance Score and Ranks of Metro Cities

Metropolitan City	Population Census 2011	No of Street Vendors	% Share of Street Vendors	Workers per Street Vendors	% Female Workers	Receipt Expenses Ratio	GVA (Rs. '000)	% Share of GVA	Perfor-mance Score	Rank
Mumbai	12478447	3547	11.87	2.10	30.05	1.60	379654	3.49	70.94	11
Delhi	11007835	9316	18.94	1.74	20.80	1.67	947160	7.41	70.60	10
Bangalore	8425970	4395	20.57	1.33	6.25	1.74	249324	3.72	78.75	21
Hyderabad	6809970	498	3.23	2.63	0.00	1.40	92101	2.14	83.10	24
Ahmedabad	5570585	11018	53.49	2.56	21.11	1.45	533965	23.76	59.37	3
Chennai	4681087	8179	19.00	1.61	41.48	1.58	871976	10.49	66.53	7
Kolkata	4486679	6077	11.61	1.09	83.02	1.23	227007	5.10	78.53	20
Surat	4462002	5281	23.39	1.45	0.13	1.60	579824	16.16	75.32	18
Pune	3115431	58	1.69	2.00	35.95	2.10	4150	0.32	67.76	8
Jaipur	3073350	1601	25.73	1.63	0.00	1.76	117200	11.53	73.25	13
Lucknow	2815601	3367	20.26	1.20	37.83	1.54	130146	6.62	73.49	15
Kanpur	2767031	2545	21.76	1.34	3.49	1.56	173006	16.80	75.78	19
Nagpur	2405421	11415	43.73	1.29	9.41	1.85	701375	22.84	65.26	6
Indore	1960631	314	5.44	1.98	20.78	1.67	39494	7.39	71.75	12
Thane	1818872	9	0.59	2.00	50.00	1.82	925	0.17	69.18	9
Bhopal	1795648	4893	48.47	1.15	9.96	1.41	211191	19.98	74.65	16
Pimpari Chinchwad	1729359	132	4.94	1.00	0.00	1.36	17625	1.12	92.81	27
Patna	1683200	107	2.09	2.18	3.93	2.01	8101	1.91	75.27	17
Vadodara	1666703	935	23.14	2.21	27.60	1.85	73602	11.91	59.20	1
Ludhiana	1613878	2181	35.77	1.00	21.98	2.46	143659	19.77	59.34	2
Agra	1574542	2930	50.24	1.71	22.89	1.51	152550	36.45	61.00	5
Nashik	1486973	1587	24.62	1.01	0.00	1.52	82168	5.28	85.02	25
Faridabad	1404653	988	11.66	1.12	3.96	1.80	104115	8.46	79.16	22
Meerut	1309023	550	9.48	1.79	27.52	1.54	41107	6.21	73.28	14
Kalyan Dambivali	1246381	312	4.28	1.00	0.00	1.37	22464	1.32	92.67	26
Varanasi	1201815	368	5.28	1.64	32.17	1.27	11660	1.96	81.65	23
Howrah	1072161	106	3.02	3.41	17.73	2.82	15847	5.21	59.94	4
All metropolitan	93663248	82708	20.77	1.60	22.27	1.57	5931397	8.06	72.24	-
Urban India	377105760	256573	13.67	1.65	22.15	1.47	17015900	7.66	75.11	-
Share of metros to urban India	24.84	32.24	-	-	-	-	34.86	-	-	-

4.14. Metropolitan cities have greater concentration of street vendors constituting 20.77% of the enterprises involved in food service activities in the metros, in comparison to just 13.67% street vendors in the urban India. Similarly, street vendors in the metros contribute a share of 8.06% to the GVA contributed by food service activities enterprises in the metropolitan cities. Also, street vendors in metropolitan cities contribute 34.86% of the GVA contributed by street vendors in urban India and 2.67% of the GVA contributed by the food service activities in urban India. GVA per street vendor enterprise is also better in metropolitan cities worth Rs.71715 in comparison to Rs.66320 contributed by an average enterprise in urban India. Similarly, Street vendor enterprise is better managed in the metro cities with receipt expanses ratio as 1.57 in comparison to similar figure of 1.47 by the street vendors in the overall urban India.

4.15. Comparison of the key characteristics of the 27 metropolitans across India reveals that Nagpur (11415) contains maximum number of street vendor enterprises, followed by Ahmedabad (11018), Delhi (9316) and Chennai (8179). On the lower side, Thane has insignificant number of street vendors preceded by Pune, Howrah, Patna and Pimpri-Chinchwad which have less than 150 street vendors. In terms of share of street vendor enterprises as percentage to food service activities enterprises in the city, Ahmedabad is the best with 53.49% followed by Agra 50.24%, Bhopal 48.47% and Nagpur 43.73%.

4.16. Maximum contribution to GVA is by Delhi (Rs.94.71 crore) followed by Chennai (Rs.87.20 crore), Nagpur (Rs.70.14 crore) and Ahmedabad (Rs.53.40 crore) and the least contribution amongst the metro is by Thane. On the other hand, GVA per enterprise is the maximum by Hyderabad (Rs.1.85 lakhs) followed by Howrah (Rs.1.50 lakh), Indore (Rs.1.26 lakh) and Surat (Rs.1.10 lakh). An average street vendor in Varanasi contributes least to GVA, just Rs.31685 preceded by Kolkata Rs.37355, LucknowRs.38653, Bhopal Rs.43162 and Ahmedabad Rs.48463. As per the share of GVA by street vendors as percentage to food service activities enterprises in the city, Agra 36.45% is the best followed by Ahmedabad 23.76%, Nagpur 22.84% and Bhopal 19.98%. Thane and Pune have less than 1% contribution.

4.17. Workers per enterprise is maximum in Howrah 3.41 while Ludhiana, Kalyan-Dambivali, and Pimpri-Chinchwad having no hired workers. Percentage of female workers in the street vendor enterprises for Kolkata is maximum 83.02% followed by Thane 50.00%, Chennai 41.48%, Lucknow 37.83% and Pune 35.95%. There are insignificant number of female workers in Jaipur, Nashik, Kalyan Dambivali, Pimpri-Chinchwad and Hyderabad. Street vendors in the metropolitan city of Howrah are the most efficient in terms of receipt expanses ratio with 2.82 followed by Ludhiana 2.46, Pune 2.10 and Patna 2.01. The worst are Kolkata 1.23, Varanasi 1.27, Pimpri-Chinchwad 1.36, Kalyan Dambivali 1.37 and Hyderabad 1.40.

4.18. Metropolitan cities have also been ranked and their performance score given, based on the five indicators viz., share of street vendors in the metro, workers per enterprise, percentage of female workers, contribution of street vendors in the GVA by the food service enterprises in the

metro and the efficiency of street vendor receipt expanses ratio in the metro. On analysis of the performance score, Vadodara has been found as the best metro for the street vendors followed by Ludhiana and Ahmedabad however, there is not much difference between the scores of the three metros. Howrah, Agra and Nagpur are the three other metros after that. On the lower side, Pimpri-Chinchwad and Kalyan Dambivali metros stand. Nashik, Hyderabad and Varanasi are the three other metros with rank 23-25. Interestingly the two most populated metros in the country viz., Mumbai and Delhi are ranked 10 and 11 respectively. The metropolitan administrations are required to arrange the infrastructure facilities required for better operation of the street vendors, the better placed metropolitans more so as that the street vendors in the metros are able to provide quality food to the people living in the metros in less costs.

5. Summary and Conclusions

5.1. Street vendors have been defined as the enterprises which are located outside the household premises with or without fixed premise and without any structure and include mobile markets which move from one place to another. Street vendors constitute13.68% of the food service activities enterprises in the un-incorporated sector and provide employment to 10.64% of the total workers in the sector. More than two-third street vendors are in urban areas. Street vending is predominantly individual activities without any hired worker. Despite being without structure and being mobile in nature, most of the street vendors have their business for more than 7 years and are still growing. Share of the street vendors in the food service activities has grown from mere 9.30% in 2006-07 to a healthy percentage of 13.68% in 2010-11. They share 7.30% of the GVA contributed by food service activities enterprises in the country.

5.2. Street vendors have small operation and utilize far less input almost one third of the inputs used by the enterprises having fixed location and permanent structure. They manage their finances and the operations well with their expanses receipt ratio being better than that of the enterprises having fixed premise and permanent structure. However, in urban areas, the efficiency of the street vendors is at par with the enterprises having fixed location and permanent structure.

5.3. Street vendors have better female participation 27.13% in comparison to just 13.58% female participation in the enterprises with fixed location and permanent structure. There are 8.03% female proprietary enterprises with high female participation of 92.47%. However, the female work force in urban areas is uniformly on lower side, probably due to the problems of safety and working environment.

5.4. Street vendor enterprises are generally unregulated with only 3.50% enterprises registered in comparison to 26.23% food service activities enterprises overall registered in the country. Majority of the food service enterprises including street vendors report the severest problems faced in operation of their activities as other than usual problems (not enumerated in the survey). It seems these problems relate to non-availability of infrastructure including pavement for street

vending operation, safety measures and the harassment meted to the street vendors. The second severe problem the street vendors face is non-availability of credit.

5.5. At all India level, one street vendor enterprise serves 436 persons while in exclusive urban areas, there is one enterprise for every 264 persons. At the State level, in terms of availability of the food services, Goa (201 persons) ranks first followed by Daman and Diu (219 persons), Meghalaya (221 persons) and Tamil Nadu (254 persons). On lower side, the less served States/UTs are Nagaland (1959 persons), Arunachal Pradesh (1421 persons), Mizoram (1110 persons) and Chhattisgarh (780 persons).

5.6. The most populated State Uttar Pradesh has the maximum number of street vendors (1.19 lakh) followed by four States having enterprises in the range of 29-33 thousand, West Bengal (33281), Tamil Nadu (30540), Gujarat (30313) and Maharashtra (29226). On the lower side, Mizoram, Nagaland, Goa, Dadra and Nagar Haveli, Lakshadweep Islands and Arunachal Pradesh, Manipur and Sikkim have insignificant number of street vendors.

5.7. Performances of the State/UTs have been evaluated based on the variables relating to concentration, employment opportunities, female participation, contribution to economy and efficiency of the street vendors in the food service activities. The best performed State/UT is Chandigarh followed by Jharkhand, Uttar Pradesh, Puducherry and Punjab. On lower side, the least performed State/UT is Sikkim preceded by Daman and Diu, Manipur, Arunachal Pradesh and Kerala.Overall in urban areas, the most performed State/UT is Chandigarh followed by Uttarakhand, Puducherry, Chhattisgarh and Odisha. The least performed States are Sikkim, Assam, Himachal Pradesh, Jharkhand and West Bengal in ranking.

5.8. Metropolitan cities have greater concentration of street vendors constituting 20.77% of all the enterprises involved in food service activities in the metros, in comparison to just 13.67% street vendors in the urban India. Similarly, street vendors in the metros contributes 8.06% of the GVA contributed by all the enterprises in the metropolitan cities in comparison to similar figure of 7.66% for urban India.

5.9. Comparison of the key characteristics of the 27 metropolitans across India reveals that Nagpur (11415) contains maximum number of street vendor enterprises, followed by Ahmedabad (11018), Delhi (9316) and Chennai (8179). On the lower side, Thane has insignificant number of street vendors preceded by Pune, Howrah, Patna and Pimpri-Chinchwad which have less than 150 street vendors. In terms of share of street vendor enterprises as percentage of all the food service activities enterprises in the city, Ahmedabad is the best with 53.49% followed by Agra 50.24%, Bhopal 48.47% and Nagpur 43.73%.

5.10. On analysis of the performance score, Vadodara has been found as the best metro for the street vendors followed by Ludhiana and Ahmedabad however, there is no significant difference

between the scores of the three metros. Howrah, Agra and Nagpur are the three other metros after that. On the lower side, Pimpri-Chinchwad and Kalyan Dambivali metros stand. Nashik, Hyderabad and Varanasi are the three other metros with rank between 23-25. Interestingly the two most populated metros in the country viz., Mumbai and Delhi are ranked 10 and 11 respectively.

5.11. Street vendors in the food service activities are to stay. They generate large employment with relatively less investment and provide low priced food to the masses. However, there is a need of proper regulation for the operation of street vendors so that their haphazard growth is restricted. Proper vocational training, sensitization for maintaining hygiene in the work place and availability of infrastructure facilities including pavement/ space in the cities/ towns may improve their efficiency and scale of operation. Banks and lending institutions may come forward to provide loans to the street vendors for their efficient management.

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Trends and Patterns of Combined Inequality in India: An Analysis across Major States from 1983 to 2011-12

Debasish Mondal[1], Aniruddha Kayet[2]

Abstract

Economic inequality in a region/country normally refers to absence of equality in the distribution of economic variables like income, expenditure, wealth etc. among the individuals/households in that region/country. Economic inequality for India and its major states can be estimated only for expenditure because NSSO collects household data only for expenditure of the sample households and NSSO itself estimates inequality with the help of such data by two widely and conveniently used relative measures of inequality – the Gini coefficient and the Lorenz curve. However, many researchers raise objection against these two relative measures of inequality. Many of them argue that both relative and absolute measures of inequality should be given equal importance in judging the real nature of inequality. In addition, eeconomic inequality can be captured by different families of inequality measures of which two are very popular and convenient - the Lorenz-Gini family and the SD-CV family. This paper tries to take up this debate and to estimate the trends and patterns of inequality by considering both relative and absolute inequality in Lorenz-Gini family and SD-CV family in rural and urban India and its major states from 1983 to 2011-12. This paper also tries to introduce the estimates of trends and patterns of combined inequality for India and its major states for the same period by combining the rural and urban sectors together.

Key Words: Rural inequality, Urban inequality, Combined inequality, Absolute inequality, Relative inequality, Index of inequality,
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1. **Introduction:**

1.1. Economic inequality in a region/country normally refers to absence of equality in the distribution of economic variables like income, expenditure, wealth etc. among the individuals/households in that region/country. Inequality can be calculated from data on such variables at individual/household level. For India, NSSO collects such household data for rural and urban sectors separately at the national level annually and/or quinquennial since India's independence on a sample basis and that data is used for inequality estimation in India. Economic inequality for India and its major states can be estimated only for expenditure and not normally for any other economic variable because NSSO collects household data only for expenditure of the sample households and not for income or wealth. NSSO itself estimates inequality for rural and urban sectors of India and its states through Gini coefficients and Lorenz curves and we all use those estimates for such purpose.

1.2. Though income is treated as the most important economic variable for measuring economic inequality of a region/country, such measure cannot be obtained for India due to lack of proper data. For India, inequality in the distribution of consumer expenditure is obtained as the only measure of economic inequality and it is also used as a proxy of income inequality. The main problem of using inequality in the distribution of consumer expenditure as the measure of income inequality lies in the fact that consumer expenditure constitutes only a part (though major part) of income. Moreover, as average propensity to spend falls with the increase in income, inequality in the distribution of consumer expenditure fairly underestimates income inequality. Many authors prefer to use inequality in the distribution of consumer expenditure than income as a measure of economic inequality because the former gives a better representation of inequality in the standard of living. However, for India we have no other choice than to use the distribution of consumer expenditure.

1.3. Many authors use the estimates provided by the NSSO for explaining the trends and patterns of inequality in the rural and urban sectors of the states of India and many of them have their own estimates on the basis of the NSSO data. Deaton and Dreze (2002) have estimated inequality for India and its states for the years 1993-94 and 1999-00 by using (i) difference of log AM and log GM and (ii) variance of log values and have observed that inequality in India has increased in this period. Dev (2007) have shown that inequality measured by Gini coefficient has an adverse effect on poverty in the period 1983 to 2004-05. Sen and Himanshu (2004) have shown that inequality, measured by Gini index, in rural and urban India has sharply increased in the 1990s. Majumdar, Sarkar and Meheta (2017) have used both the Gini index and the general entropy measure to examine the pattern of change in inequality in India in the pre-reform and the post-reform period. Thus, Gini index has been used by almost all of them for measuring inequality in India.

If $Y_1, Y_2, \ldots, Y_n$ are income levels of n individuals of a region/country in non-decreasing order with mean income μ then Gini coefficient for income distribution of this population is given by

$G = \frac{\sum_{i=1}^{n}\sum_{j=1}^{n}|Y_i - Y_j|}{2n^2\mu}$. Some academicians prefer to express Gini coefficient as $G = \frac{\sum_{i=1}^{n}\sum_{j=1}^{n}|Y_i - Y_j|}{2n(n-1)\mu}$. It is a single-valued quantitative or scalar measure. It is an additive measure. It is a relative (as opposed to absolute) measure – a measure relative to mean income. It is a unit free measure. For infinite population it is an index measure – its value lying between 0 and 1. It is a relative measure in another sense – it is relative to maximum possible absolute or relative value of inequality.

1.4. On the other hand, Lorenz curve is given by the locus of percentage income appropriations by percentage cumulative populations having income in the non-decreasing order. It is a plural (as opposed to singular) measure, or a multi valued measure – a qualitative measure. It is also a relative (as opposed to absolute) and so unit free measure. It is also an index measure under the assumption of infinitely large population.

1.5. Gini coefficient is equal to Lorenz ratio. They use same principle of inequality measurement. Both of them are relative measures. Both of them are unit free measures. Both of them are index measures for infinite population. Lorenz curve is actually the graphical or plural counter-part of Gini coefficient. They belong to the same family. Let us call the family the Lorenz-Gini family. We, in this paper, shall use this measure of inequality, i.e., the Gini coefficient, but shall not rely only on this because of the reasons mentioned below.

1.6. Though Gini coefficient is still used popularly in inequality estimation mainly because of convenience and tradition of its use, some prefers to use standard deviation (SD) and coefficient of Variation (CV) for the purpose. For example, Subramanian and Jayaraj (2015) have used the Krtscha (1994) measure (product of SD and CV) for measuring inequality in India in a centrist way. As we shall see below there are some added advantages in using SD and CV as measures of inequality over the Gini coefficient. Moreover, many researchers raise objection against the use of only relative measures of inequality. Many of them argue that both relative and absolute measures of inequality should be given equal importance in judging the real trends and patterns of inequality.

1.7. This paper tries to take up these two debates and to estimate the trends and patterns of inequality by considering both relative and absolute inequality in Lorenz-Gini family and SD-CV family in rural and urban India and its major states from 1983 to 2011-12. This paper also tries to have estimates of trends and patterns of combined inequality for India and its major states for the same period by combining the rural and urban sectors together.

2. **Some questions on measurement:**

2.1. Let us come to the question of how good or how much logical the Lorenz-Gini family is in inequality measurement. To be good it should satisfy some basic requirements/principles of inequality measure. These requirements/principles are derived by the academicians in this field from the definition and expected properties of inequality measure. They are found so logical and obvious that they are used as axioms in inequality measurement. According to Mondal (2014), both Gini coefficient and Lorenz Curve satisfy the **'principle of income transfer – the Pigou-Dalton principle' and the 'principle of proportionate additions to incomes'**. In addition, they approximately, but not exactly, satisfy the **'principle of proportionate additions to persons'**. But both the Gini coefficient and the Lorenz Curve fail to satisfy the **'principle of equal additions to incomes'** and Gini coefficient fails to satisfy the **'principle of decomposition by subgroups'** and the **'principle of decomposition by components of incomes'**.

2.2. Actually inequality can be viewed both in absolute and relative senses. In the Lorenz-Gini family the absolute measure of inequality is $\frac{\sum_{i=1}^{n}\sum_{j=1}^{n}|Y_i - Y_j|}{2n^2}$. It is the pure per capita inequality and satisfies the **'Principle of proportionate additions to persons'** and the **'Principle of equal additions to incomes'**. An absolute measure of inequality is not unit free and so inequality comparison across countries using different units of measuring income or over time in the same country with inflationary conditions becomes inconvenient. An absolute measure of inequality of this type has a fixed lower bound at 0 but its upper bound is not fixed. It is given by $\frac{n-1}{n}\mu$ when all income is enjoyed by a single person. For this reason also, an absolute measure of inequality is inconvenient for inequality comparison. It is also inconvenient for inequality comparison as it fails to compare inequality relative to mean income.

2.3. In this family the relative measure of inequality is $\frac{\sum_{i=1}^{n}\sum_{j=1}^{n}|Y_i - Y_j|}{2n^2\mu}$. This is the Gini coefficient of the first type. It is the measure of inequality per capita and per rupee of mean income and satisfies the **'Principle of proportionate additions to persons'** and the **'Principle of proportionate additions to incomes'**. A relative measure of inequality is unit free and so inequality comparison across countries using different units of measuring income or over time in the same country with inflationary conditions becomes convenient. It is also convenient for inequality comparison as it compares inequality relative to mean income. A relative measure of inequality of this type has a fixed lower bound at 0 but its upper bound is not fixed. It is given by $\frac{n-1}{n}$ when all income is enjoyed by a single person.

2.4. Kolm in his famous article 'Unequal Inequalities I' (Kolm, 1976) has well taken up this debate between absolute and relative inequality. He has been of the opinion that inequalities can be measured by both the ways and the researchers in this field have used both of them. He has tried to define a relative measure of inequality as a 'rightist' measure of inequality as the richer section of the community or the capitalist class or their union prefers to accept it when income increases (by equal amount or by equal proportion) and an absolute measure of inequality as 'leftist' measure of inequality as the poorer section of the community or the labour class or the labour union prefers to accept it when income increases.

2.5. He writes:

2.5.1. "In May 1968 in France, radical students triggered a student upheaveal which induced a workers' general strike. All this was ended by the Grenelle agreements which decreed a 13% increase in all payrolls. Thus, laborers earning 80 pounds a month received 10 pounds more, whereas executives who already earned 800 pounds a month received 100 pounds more. The Radicals felt bitter and cheated; in their view, this widely increased incomes inequality. But this would have left unchanged an inequality index."

2.5.2. "And I have found many people who feel that it is an equal absolute increase in all incomes which does not augment inequality, whereas an equiproportional increase makes income distribution less equal or more unequal – and these were people of moderate views. When all incomes are multiplied by the same number, whereas a relative measure of inequality does not change, an absolute measure of inequality is multiplied by this number. Therefore, if we study variations of an absolute measure of inequality over time in an inflationary country, we must use real incomes, discounted for inflation; or if we make international comparisons, we must use the correct exchange rates. This need not be done if we use a relative measure of inequality. **Anyway, convenience could not be an alibi for endorsing injustice**."

2.5.3. "The economic literature is, of course, relatively rich in opinions about the effects of equal or equiproportional variations in incomes on the inequality of their distribution. . . . Loria, Cannan, and Dalton feel that an equal addition to all incomes decreases inequality; an absolute measure of inequality of course does not satisfy this condition, whereas a relative measure of inequality does. For Dalton (1920) again, an increase of all incomes in the same proportion increases inequality; a relative measure of inequality of course does not satisfy this property, whereas an absolute measure does. From this we see that Dalton would have liked neither an absolute measure nor a relative measure of inequality. But the 'centrist' measures of inequality might suit his taste, since they satisfy both his requirements."

2.6. However, viewing relative measure of inequality as 'rightist' and absolute measure of inequality as 'leftist' is not completely true, because when income falls (by equal amount or by equal proportion) the richer section of the community or the capitalist class or their union prefers to accept an absolute measure of inequality and the poorer section of the community or the labour class or the labour union prefers to accept a relative measure. Anyway, these are two

well-accepted views and Kolm himself was convinced of both the views. He has preferred to develop a 'centrist' view of inequality in between the two.

2.7. We are also actually convinced of both the views and probably like Kolm we also want to have a centrist view in between the absolute and relative views. We do not want that inequality remains constant with equal additions to incomes; rather we want that inequality fall. Similarly, we also do not want that inequality remains constant with proportionate additions to incomes; rather we want that inequality increase.

2.8. Thus to have a complete view of inequality, we should have a plural view, it should be measured in both ways – absolute and relative. This may lead to a conflicting conclusion in both inter-temporal and inter-state comparisons. If we want to avoid this conflict and try to develop a singular measure, a centrist measure, we shall be in trouble once again because it is difficult to determine the relative weights of absolute and relative inequalities. We shall not go for that, rather we shall present them separately.

2.9. As mentioned earlier, some authors do not have full satisfaction on the Gini coefficient and the Lorenz curve, we shall consider another family of inequality measure. In the discussion about different measures of inequality, both Sen (1973) and Kolm have found that standard deviation and coefficient of variation satisfy the basic properties of absolute and relative measures of inequality respectively. Kolm has observed that these measures though satisfy the 'income transfer principle'; they fail to satisfy the 'principle of diminishing income transfer'. Sen rejects these measures on three grounds one of which is their failure to satisfy the 'principle of diminishing income transfer'. The second reason is the way the deviations are taking in the formula of standard deviation and coefficient of variation. According to Sen deviations of income from the mean is less reasonable than deviations of one income from the other. The third reason lies in the squaring principle applied in the formula of standard deviation and coefficient of variation. He finds no justice in applying this principle; rather he finds that this squaring principle is making the increase in inequality from regressive transfer invariant to the levels of income of the two individuals hence dissatisfying the 'principle of diminishing income transfer'. However, the second reason shown by Sen is not tenable because standard deviation can also be expressed as $\sigma = \sqrt{\frac{1}{2n^2}\sum\sum(Y_i - Y_j)^2}$. The squaring principle in standard deviation and coefficient of variation that makes them not to satisfy the 'principle of diminishing income transfer' can be said to be unreasonable if we are convinced of the principle of diminishing income transfer but cannot be said to be more unreasonable than the measures in the Gini family. In the Gini family a regressive transfer of an amount between two poor persons with an income difference may lead to a less increment in inequality than a regressive transfer of the same amount between two rich persons with same income difference if the number of persons between the two poor persons is less than that between the two rich persons. This property makes them more unreasonable than those in the SD-CV family. The 'principle of diminishing income transfer' is put forward on the ground of diminishing marginal

utility of income. Standard deviation of the logarithm of income is tried as a solution; but has not succeeded to be reasonable for other reasons. Diminishing marginal utility of income leads to a higher welfare loss from a regressive transfer of an amount between two poor persons with an income difference than a regressive transfer of the same amount between two rich persons with same income difference. This also leads to a larger increase in the inequality in the welfare distribution in the former case. But if we are interested in the income distribution as such and not in the implied welfare distribution then we may not bother about it. Moreover, if marginal utility diminishes at a constant rate the 'principle of diminishing income transfer' no longer remains reasonable, rather the inequality measures in the SD-CV family become fully reasonable.

2.10. As explained by Kolm and as is seen from the formula, SD is a per person inequality measure and thus an absolute measure of inequality. CV is a per person per rupee of mean income/expenditure inequality measure and so a relative measure of inequality. The upper bound of this relative measure is $\sqrt{n-1}$ and so CV has to be divided by $\sqrt{n-1}$ to have an index measure of inequality in the SD-CV family. For Gini measure the relative measure of inequality is very close to the index measure of inequality for large population. But for the measures in the SD-CV family relative measure of inequality (measured by CV) is widely different from the index measure of inequality (measured by CV-index). This is the main advantage of using the absolute, relative and index measures of inequality in the SD-CV family over the Lorenz-Gini family.

2.11. In India, NSSO collects household expenditure data for rural and urban sector separately and estimates inequality by using such data for rural and urban sector separately. In this paper we make an attempt to have an estimate of **overall inequality** (better named as **combined inequality**) vis-à-vis rural inequality and urban inequality. The combined inequality, absolute or relative, in Lorenz-Gini family or in SD-CV family are estimated simply by combining the raw data of consumption expenditure for rural and urban sectors together with their corresponding population.

3. Some previous works raising the debate between the absolute measure of inequality and the relative measure of inequality

3.1. Sometimes the absolute measure of inequality and the relative measure of inequality give the opposite trends. Johan P. Mackenbach (2015) argues that such opposing trends for relative and absolute inequalities in health are quite common in European countries. Yukiko Asada (2010) argues that neither absolute nor relative inequality measure alone properly reflect our conception of inequality.

3.2. Francisco Azpitarte and Olga Alonso-Villar (2012) provide an empirical illustration of pattern of inequality using Australian income data for the period 2001–2008. The results

suggest that despite the reduction of relative inequality, inequality increased for most centrist value judgments.

3.3. Corel Del Rio and Javier Ruiz-Castillo (2001) provide an empirical work in the case of Spain for the period 1980-81 to 1990-91 in this regard. They argue that 1990-91 household expenditures distribution in Spain dominates, in the relative Lorenz sense, the 1980-81 distribution, but the latter dominates the former in the absolute Lorenz sense.

3.4. Kristof Bosmans, Koen Decancq and Andre Decoster (2011) compare absolute, relative and intermediate views on the evolution of global inequality between 1980 and 2009. They argue that according to the relative view, inequality remains invariant after a uniform proportional change of all incomes whereas the absolute view requires invariance to a uniform change of all incomes with the same amount.

3.5. A single measure of inequality that captures all dimensions of health improvement and inequality does not exist; therefore, it is advisable to apply different measures to best understand and compare inequalities over time or across population subgroups and countries, Cristina Masseria and Sara Allin (2008).

4. Trends and patterns of economic inequality in India and its major states:

4.1. **Relative inequality in Lorenz-Gini family:** The estimated values of rural, urban and combined relative economic inequality in Lorenz-Gini family measured by Gini coefficient in India and its major states from the period 1983 to 2011-12 is given in table 1. From table 1 it is seen that urban Gini coefficient is greater than rural Gini coefficient in most of the cases. However, the opposite result is observed in Madhya Pradesh and Rajasthan in 1983, in Punjab in 1987-88 and in Haryana in 1993-94. The combined Gini coefficient lies between rural Gini coefficient and urban Gini coefficient in most of the cases. However, in some years and in some states combined Gini coefficient lies above both rural and urban Gini coefficients. In 1983, in the states of Gujarat, Madhya Pradesh and Maharashtra the combined Gini coefficient is greater than rural and urban Gini coefficients. The same pattern is observed in Karnataka, Maharashtra and Tamil Nadu in 1987-88, in Maharashtra in 1993-94 and 1999-00, in Gujarat, Karnataka, Maharashtra and Tamil Nadu in 2004-05, in Gujarat, Karnataka, and Tamil Nadu in 2009-10 and in Gujarat, Kerala, Maharashtra and Tamil Nadu in 2011-12. This happens mainly due to a large MPCE gap in comparison to the inequality gap or due to a large ratio of these two gaps (appendix table A2).

Table 1: Trends and patterns of rural, urban and combined relative inequality (Total expenditure) in Lorenz-Gini family (Gini coefficient) in India and its major states from 1983 to 2011-12

States/All India	1983			1987-88			1993-94		
	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ
Andhra Pradesh	0.292	0.306	0.304	0.301	0.361	0.331	0.285	0.320	0.309
Assam	0.192	0.238	0.204	0.222	0.337	0.254	0.176	0.287	0.218
Bihar	0.255	0.298	0.271	0.264	0.297	0.274	0.266	0.310	0.247
Gujarat	0.252	0.264	0.267	0.233	0.285	0.274	0.236	0.290	0.277
Haryana	0.279	0.321	0.293	0.281	0.297	0.288	**0.301**	**0.280**	0.301
Karnataka	0.299	0.330	0.323	0.292	0.297	0.323	0.266	0.320	0.309
Kerala	0.330	0.371	0.343	0.323	0.387	0.345	0.288	0.340	0.307
Madhya Pradesh	**0.292**	**0.290**	0.304	0.290	0.331	0.324	0.277	0.330	0.313
Maharashtra	0.283	0.329	0.334	0.331	0.352	0.377	0.302	0.350	0.373
Odisha	0.266	0.294	0.281	0.267	0.324	0.297	0.243	0.300	0.282
Punjab	0.279	0.321	0.293	**0.295**	**0.278**	0.293	0.265	0.280	0.274
Rajasthan	**0.340**	**0.301**	0.336	0.311	0.346	0.326	0.260	0.290	0.276
Tamil Nadu	0.324	0.347	0.346	0.323	0.354	0.357	0.307	0.340	0.340
Uttar Pradesh	0.290	0.312	0.300	0.279	0.329	0.302	0.278	0.320	0.299
West Bengal	0.284	0.328	0.321	0.252	0.353	0.310	0.251	0.330	0.310
ALL INDIA	0.297	0.325	0.318	0.298	0.352	0.333	0.282	0.340	0.324

RINEQ: Rural inequality
UINEQ: Urban inequality
CINEQ: Combined inequality

1999-00			**2004-05**			**2009-10**			**2011-12**		
RINEQ	**UINEQ**	**CINEQ**	**RINEQ**	**UINEQ**	**CINEQ**	**RINEQ**	**UINEQ**	**CINEQ**	**RINEQ**	**UINEQ**	**CINEQ**
0.235	0.313	0.293	0.290	0.370	0.346	0.278	0.382	0.362	0.282	0.336	0.330
0.201	0.309	0.251	0.195	0.320	0.252	0.244	0.324	0.284	0.221	0.350	0.278
0.207	0.319	0.232	0.205	0.330	0.238	0.225	0.332	0.253	0.232	0.297	0.248
0.234	0.286	0.286	0.269	0.310	0.332	0.254	0.324	0.338	0.282	0.290	0.321
0.239	0.287	0.262	0.321	0.360	0.344	0.301	0.360	0.335	0.271	0.401	0.354
0.241	0.323	0.317	0.262	0.360	0.364	0.234	0.334	0.348	0.321	0.445	0.431
0.270	0.321	0.289	0.341	0.400	0.369	0.417	0.498	0.469	0.429	0.436	0.438
0.242	0.315	0.297	0.266	0.390	0.356	0.292	0.364	0.352	0.283	0.407	0.358
0.258	0.348	0.353	0.307	0.370	0.391	0.268	0.410	0.404	0.292	0.366	0.373
0.244	0.290	0.272	0.282	0.350	0.326	0.261	0.389	0.327	0.255	0.358	0.315
0.239	0.288	0.263	0.279	0.390	0.344	0.289	0.372	0.334	0.301	0.333	0.321
0.209	0.282	0.244	0.245	0.370	0.302	0.225	0.378	0.295	0.257	0.333	0.298
0.279	0.381	0.371	0.316	0.360	0.376	0.264	0.332	0.337	0.297	0.334	0.343
0.246	0.328	0.280	0.287	0.370	0.326	0.263	0.361	0.312	0.265	0.423	0.336
0.224	0.341	0.309	0.269	0.380	0.358	0.238	0.384	0.348	0.251	0.406	0.370
0.260	0.342	0.320	0.300	0.371	0.364	0.291	0.381	0.366	0.307	0.385	0.374

Fig 1: Graphical representation of combined relative inequality (Total expenditure) in Lorenz-Gini family (Gini coefficient) in India from 1983 to 2011-12

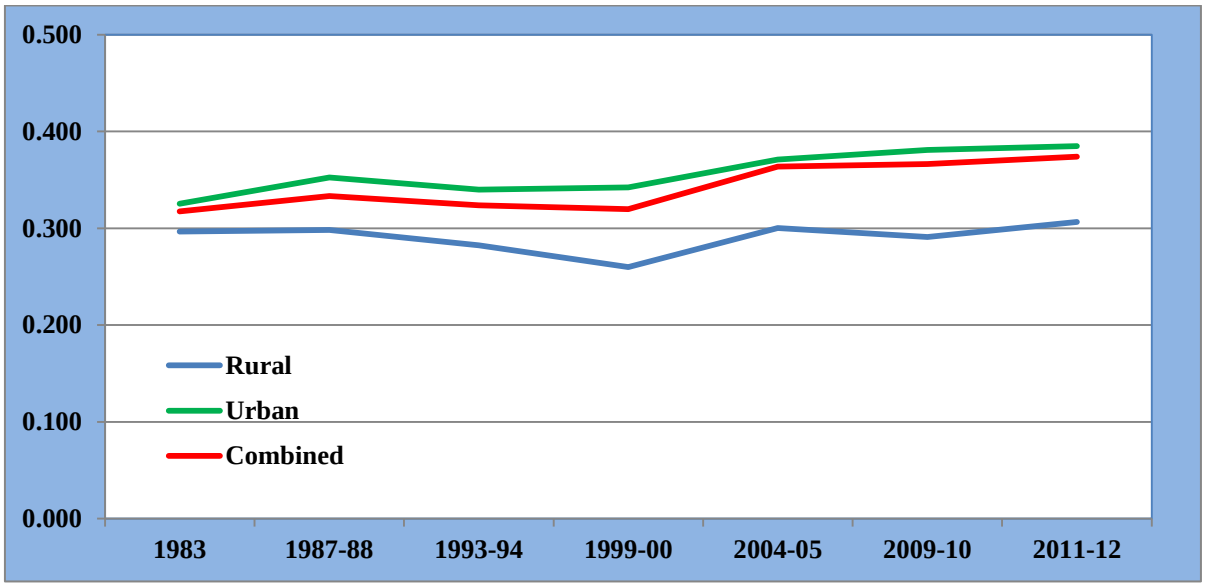


Figure 1 represents the trend lines of rural, urban and combined relative inequalities in Lorenz-Gini family in India. From the figure 1 it is seen that, there is a mixed trend of relative inequalities in this family in India. It is also observed that the urban Gini coefficient is greater than rural Gini coefficient and the combined Gini coefficient lies between rural Gini coefficients and urban Gini coefficients in India.

4.2 Relative inequality in SD-CV family: The estimated values of rural, urban and combined relative inequality in SD-CV family measured by coefficient of variation (CV)in India and its major states from the period 1983 to 2011-12 is given in table 2. From the table 2 it is seen that urban CV is greater than rural CV in most of the cases. However, the opposite result is observed in Gujarat and Madhya Pradesh in 1983, in Maharashtra and Punjab in 1987-88, in Haryana in 1993-94, in Tamil Nadu in 2004-05 and in Kerala in 2011-12.

Table 2: Trends and patterns of rural, urban and combined relative inequality (Total expenditure) in SD-CV family (Coefficient of variation) in India and its major states from 1983 to 2011-12

States/All India	1983			1987-88			1993-94		
	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ
Andhra Pradesh	0.617	0.620	0.637	0.657	0.909	0.805	0.618	0.672	0.671
Assam	0.396	0.507	0.429	0.458	1.063	0.720	0.340	0.571	0.489
Bihar	0.544	0.609	0.584	0.608	0.728	0.646	0.455	0.655	0.546
Gujarat	**0.551**	**0.543**	0.570	0.483	0.622	0.605	0.472	0.604	0.594
Haryana	0.556	0.633	0.583	0.577	0.644	0.604	**0.590**	**0.553**	0.588
Karnataka	0.616	0.646	0.661	0.656	0.809	0.773	0.552	0.635	0.653
Kerala	0.744	0.782	0.762	0.690	0.843	0.757	0.568	0.767	0.655
Madhya Pradesh	**0.633**	**0.610**	0.654	0.638	0.711	0.732	0.599	0.765	0.733
Maharashtra	0.593	0.626	0.684	**0.887**	**0.756**	0.882	0.647	0.700	0.797
Orissa	0.552	0.594	0.592	0.584	0.697	0.678	0.514	0.608	0.622
Punjab	0.556	0.633	0.583	**0.598**	**0.553**	0.586	0.515	0.549	0.535
Rajasthan	0.742	0.606	0.714	0.655	0.910	0.769	0.531	0.591	0.570
Tamil Nadu	0.711	0.728	0.756	0.720	0.808	0.830	0.672	0.779	0.776
Uttar Pradesh	0.629	0.653	0.649	0.604	0.719	0.675	0.570	0.690	0.639
West Bengal	0.571	0.661	0.676	0.569	0.788	0.752	0.565	0.680	0.699
ALL INDIA	0.636	0.657	0.678	0.666	0.811	0.783	0.595	0.724	0.718

1999-00			2004-05			2009-10			2011-12		
RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ
0.487	0.641	0.646	0.629	0.879	0.851	0.564	0.806	0.840	0.615	0.744	0.754
0.390	0.613	0.566	0.381	0.697	0.613	0.493	0.616	0.606	0.444	0.757	0.673
0.423	0.697	0.527	0.420	0.735	0.561	0.426	0.678	0.535	0.468	0.607	0.517
0.451	0.586	0.603	0.543	0.636	0.713	0.515	0.667	0.729	0.653	0.592	0.677
0.442	0.567	0.511	0.667	0.801	0.748	0.602	0.720	0.686	0.555	0.913	0.871
0.486	0.655	0.694	0.661	0.767	0.863	0.455	0.647	0.750	0.826	1.036	1.118
0.510	0.637	0.566	0.661	0.884	0.776	1.006	1.250	1.193	**1.248**	**1.108**	1.178
0.504	0.712	0.694	0.566	0.942	0.941	0.592	0.753	0.782	0.591	1.004	0.950
0.515	0.719	0.785	0.666	0.806	0.893	0.533	0.898	0.979	0.656	0.842	0.896
0.488	0.637	0.591	0.619	0.752	0.758	0.503	0.846	0.799	0.520	0.747	0.737
0.446	0.594	0.523	0.537	1.010	0.891	0.583	0.779	0.713	0.654	0.735	0.710
0.406	0.593	0.524	0.535	0.888	0.773	0.435	0.871	0.740	0.535	0.733	0.675
0.586	0.947	0.961	**0.766**	**0.764**	0.847	0.530	0.658	0.704	0.679	0.712	0.755
0.508	0.704	0.621	0.656	0.862	0.796	0.536	0.742	0.692	0.560	1.022	0.895
0.457	0.757	0.754	0.616	0.801	0.857	0.473	0.796	0.828	0.513	0.953	0.981
0.526	0.730	0.724	0.669	0.818	0.859	0.595	0.804	0.839	0.681	0.875	0.904

The combined CV lies between rural CV and urban CV in most of the cases. However, in some years and in some states combined CV lies above both rural CV and urban CV. For the states Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, West Bengal and for all India the combined CV is greater than rural and urban CV in 1983. The same trends and patterns are observed in Madhya Pradesh and Tamil Nadu in 1987-88, in Karnataka, Maharashtra, Orissa and West Bengal in 1993-94, in Andhra Pradesh, Gujarat, Karnataka, Maharashtra and Tamil Nadu in 1999-00. In Gujarat, Karnataka, Maharashtra, Orissa, Tamil Nadu, West Bengal and all India the combined CV is greater than rural and urban CV in 2004-05. For the states Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, West Bengal and for all India in 2009-10 and for Andhra Pradesh, Gujarat, Karnataka, Kerala, Maharashtra, Tamil Nadu, West Bengal and all India in 2011-12the combined CV is greater than rural and urban CV. This happens mainly due to either a larger absolute MPCE gap or a smaller absolute inequality gap or a larger absolute ratio of these two gaps (appendix table A3).

Fig 2: Graphical representation of combined relative inequality (Total expenditure) in SD-CV family (Coefficient of variation) in India from 1983 to 2011-12

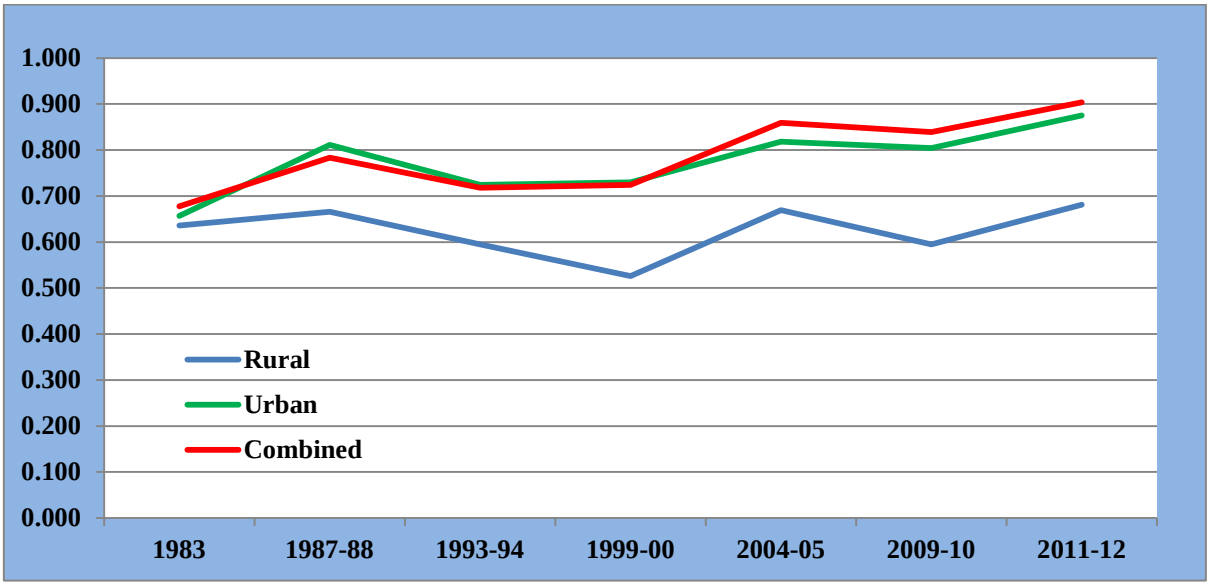


Figure 2 represents the trend lines of rural, urban and combined relative inequalities in SD-CV family in India. From the figure 2 it is seen that, there is a mixed trend of relative inequalities in this family in India. It is also observed that the urban CV is greater than rural CV and the combined CV lies between rural CV and urban CV in 1987-88, 1993-94 and 1999-00 in India. However, the combined CV lies above the urban CV in 1983, 2004-05, 2009-10 and 2011-12 in India.

4.3 Index of inequality in SD-CV family: The estimated values of rural, urban and combined index of inequality in SD-CV family measured by CV-index in India and its major states from the period 1983 to 2011-12 is given in Table 3. From Table 3 it is seen that urban

CV-index is greater than rural CV-index in all cases. This happens because in India and all its major states rural population is significantly greater than urban population.

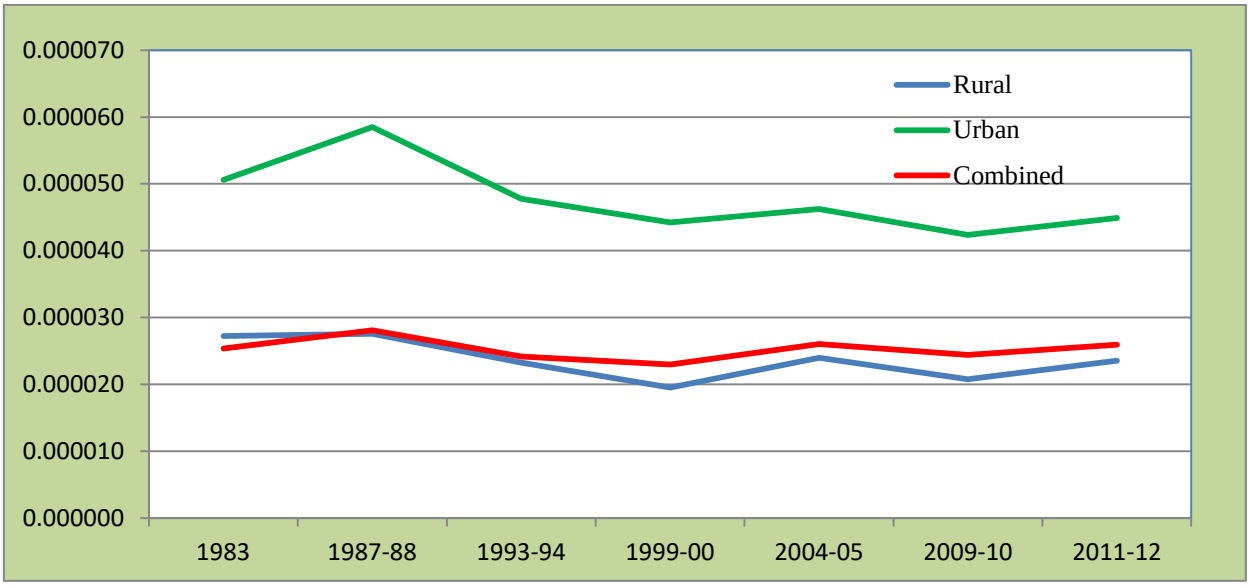
4.3.1. From Table 3 it is also observed that the combined CV-index either lies in between rural CV-index and urban CV-index or lies below the rural CV-index. Combined population being larger than rural population the combined CV-index is less than rural CV-index in majority of the cases. For some states and for some years the combined CV-index doesn't fall below the rural CV-index because of a larger gap between urban CV-index and rural CV-index.

Table 3: Trends and patterns of rural, urban and combined index of inequality (Total expenditure) in SD-CV family (CV-Index) in India and its major states from 1983 to 20011-12

States/All India	1983			1987-88			1993-94		
	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ
Andhra Pradesh	0.000094	0.000166	0.000085	0.000097	0.000226	0.000102	0.000087	0.000158	0.000081
Assam	0.000095	0.000388	0.000099	0.000106	0.000725	0.000158	0.000075	0.000348	0.000101
Bihar	0.000071	0.000216	0.000072	0.000081	0.000275	0.000081	0.000058	0.000246	0.000066
Gujarat	0.000112	0.000161	0.000096	0.000096	0.000174	0.000098	0.000089	0.000156	0.000090
Haryana	0.000156	0.000287	0.000139	0.000170	0.000344	0.000156	0.000163	0.000262	0.000140
Karnataka	0.000117	0.000192	0.000106	0.000121	0.000228	0.000119	0.000097	0.000166	0.000095
Kerala	0.000163	0.000330	0.000148	0.000151	0.000322	0.000144	0.000119	0.000286	0.000120
Madhya Pradesh	0.000094	0.000176	0.000087	0.000091	0.000190	0.000092	0.000086	0.000196	0.000092
Maharashtra	0.000091	0.000128	0.000084	0.000131	0.000145	0.000103	0.000091	0.000122	0.000087
Orissa	0.000112	0.000325	0.000113	0.000115	0.000358	0.000125	0.000097	0.000286	0.000109
Punjab	0.000156	0.000287	0.000139	0.000163	0.000238	0.000135	0.000134	0.000215	0.000116
Rajasthan	0.000139	0.000217	0.000119	0.000117	0.000304	0.000122	0.000088	0.000181	0.000083
Tamil Nadu	0.000122	0.000181	0.000107	0.000120	0.000194	0.000114	0.000112	0.000170	0.000103
Uttar Pradesh	0.000064	0.000140	0.000060	0.000059	0.000144	0.000059	0.000053	0.000128	0.000053
West Bengal	0.000088	0.000168	0.000089	0.000084	0.000190	0.000095	0.000079	0.000155	0.000083
All India	0.000027	0.000051	0.000025	0.000028	0.000059	0.000028	0.000023	0.000048	0.000024

1999-00			2004-05			2009-10			2011-12		
RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ
0.000066	0.000143	0.000075	0.000084	0.000184	0.000096	0.000075	0.000156	0.000092	0.000082	0.000139	0.000082
0.000082	0.000339	0.000111	0.000077	0.00036	0.000116	0.000096	0.000299	0.00011	0.000086	0.00036	0.00012
0.00005	0.000242	0.000059	0.000047	0.000238	0.000059	0.000045	0.000203	0.000053	0.000049	0.000176	0.000051
0.000081	0.000138	0.000086	0.000095	0.000139	0.000097	0.000088	0.000135	0.000095	0.000111	0.000116	0.000087
0.000115	0.000238	0.000113	0.000169	0.000304	0.000157	0.000149	0.00025	0.000138	0.000137	0.000306	0.000173
0.000083	0.000158	0.000097	0.00011	0.000173	0.000116	0.000075	0.000136	0.000097	0.000135	0.000212	0.000143
0.000104	0.00023	0.0001	0.000139	0.00028	0.000136	0.00023	0.000333	0.000207	0.000301	0.000274	0.000203
0.000076	0.00018	0.00009	0.000084	0.000229	0.000119	0.000084	0.000172	0.000094	0.000081	0.000223	0.000111
0.00007	0.000115	0.000081	0.000088	0.000121	0.000088	0.000068	0.000128	0.000093	0.000084	0.000118	0.000084
0.000088	0.000277	0.000099	0.000109	0.000307	0.000122	0.000086	0.000326	0.000125	0.000088	0.000281	0.000114
0.000112	0.00021	0.000107	0.000132	0.000337	0.000176	0.000141	0.000246	0.000137	0.000157	0.000227	0.000135
0.000063	0.000167	0.000071	0.000079	0.000234	0.000099	0.000061	0.000216	0.000091	0.000074	0.000177	0.000081
0.000099	0.000185	0.000123	0.000129	0.00014	0.000105	0.000088	0.000113	0.000084	0.000111	0.00012	0.000089
0.000045	0.000122	0.000049	0.000056	0.000141	0.00006	0.000044	0.000114	0.00005	0.000045	0.000153	0.000063
0.000061	0.000163	0.000085	0.00008	0.000163	0.000094	0.000061	0.000151	0.000088	0.000066	0.000176	0.000103
0.00002	0.000044	0.000023	0.000024	0.000046	0.000026	0.000021	0.000042	0.000024	0.000024	0.000045	0.000026

Fig 3: Graphical representation of combined index of inequality (Total expenditure) in SD-CV family (CV-Index) in India from 1983 to 2011-12



4.3.2. Figure 3 represents the trend lines of rural, urban and combined index of inequalities in SD-CV family in India. From the figure 3 it is seen that, there is a mixed trend of index of inequalities in this family in India. It is also observed that the urban CV-index is greater than rural CV-index and the combined CV-index lies between rural CV-index and urban CV-index in most of the referred years in India. However, the combined CV-index lies below the rural CV-index in 1983 in India.

4.4. **Absolute inequality in Lorenz-Gini family:** The estimated values of rural, urban and combined absolute inequality in Lorenz-Gini family measured by absolute Gini[3] in India and its major states for the referred period is given in table 4. From the table 4 it is seen that urban absolute Gini is greater than rural absolute Gini in all major states of India.

From the table 4 it is also observed that the combined absolute Gini lies between rural absolute Gini and urban absolute Gini in all major states of India.

[3]Comparable absolute inequality in consumer expenditure can be easily measured if we have the values at constant prices. A simple absolute measure of inequality can be obtained by multiplying Gini coefficient by the respective average MPCE at constant prices.

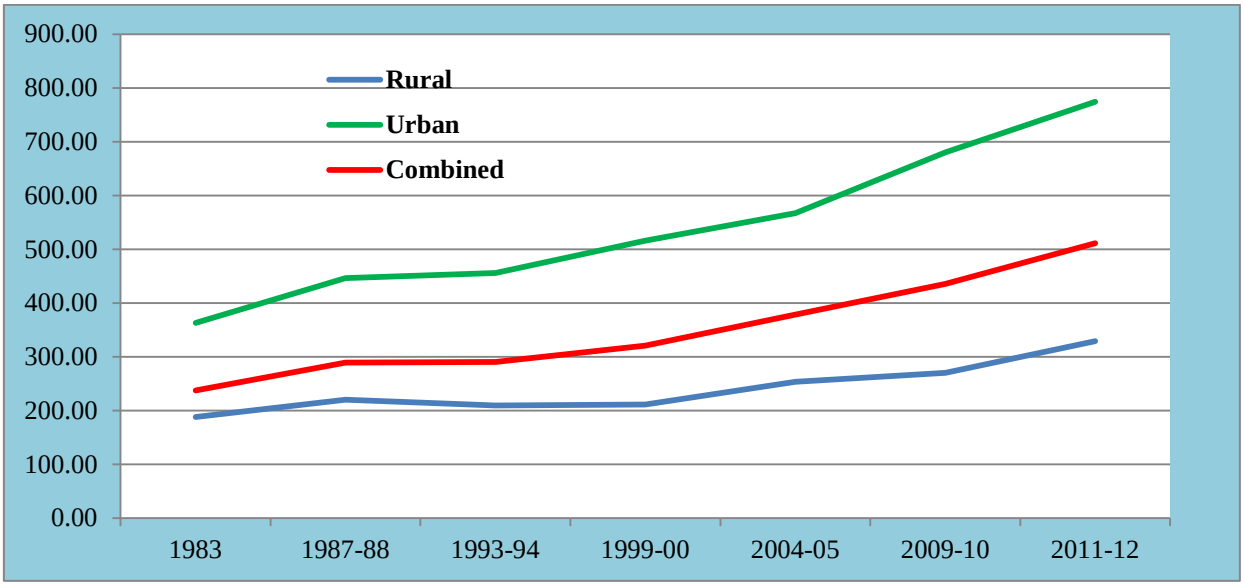
Table 4: Trends and patterns of rural, urban and combined absolute inequality (Total expenditure) in Lorenz-Gini family (Absolute Gini) in India and its major states from 1983 to 2011-12

(Rs. At 2009-10 prices)

States/All India	1983			1987-88			1993-94		
	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ
Andhra Pradesh	190.36	319.14	227.28	225.31	421.24	283.46	217.13	383.05	270.60
Assam	122.56	249.54	138.34	159.08	460.03	199.34	119.40	385.88	164.79
Bihar	135.12	280.61	156.62	168.15	280.35	183.66	153.28	320.26	153.82
Gujarat	174.71	293.68	221.02	175.51	347.48	248.74	188.28	385.44	272.81
Haryana	268.93	404.95	305.94	281.20	378.63	306.99	305.04	388.33	334.01
Karnataka	197.22	373.34	257.29	203.24	333.80	266.39	189.15	396.25	270.57
Kerala	270.70	444.87	308.90	318.53	521.69	371.77	296.43	491.74	346.93
Madhya Pradesh	165.78	286.04	199.24	191.84	395.40	253.30	184.16	394.07	247.86
Maharashtra	176.50	412.87	283.38	248.12	498.60	376.39	217.10	542.65	391.48
Orissa	148.29	302.34	172.76	158.99	368.12	197.62	140.79	353.40	186.62
Punjab	268.93	404.95	305.94	336.99	380.22	353.52	301.83	418.49	342.59
Rajasthan	243.49	327.04	267.56	258.53	416.73	297.99	220.81	360.45	259.50
Tamil Nadu	205.29	386.07	273.09	232.26	445.86	320.13	237.52	436.09	327.14
Uttar Pradesh	171.31	287.15	195.38	193.76	361.42	233.52	200.70	364.25	241.09
West Bengal	167.56	378.86	237.71	176.00	446.05	264.67	184.47	457.93	283.15
ALL INDIA	188.30	362.99	237.61	220.08	446.16	289.42	209.35	455.74	290.38

1999-00			2004-05			2009-10			2011-12		
RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ
178.75	426.57	269.82	256.4	547.19	365.51	283.6	757.21	480.92	362.58	704.24	514.85
143.41	443.43	201.93	160.03	491.57	230.75	210.69	499.05	272.11	193.62	595.66	275.86
133.15	337.56	159.54	128.9	333.61	159.67	153.23	362.65	184.14	195.74	350.52	218.82
215.68	450.58	332.03	242.03	501.96	392.25	252.71	602.32	457.18	345.99	578.88	499.16
285.81	461.02	343.2	419.15	597.11	485.69	419.47	683.34	523.79	427.76	1093.53	702.06
201.75	518.49	346.35	201.17	540.06	374.11	188.73	573.27	400.61	377.33	1098.23	722.86
346.23	528.59	396.44	522.47	749.72	604.3	771.73	1326.4	1029.94	904.13	1122.21	1022.05
162.53	385.74	242.2	176.34	511.72	298.93	232.6	534.84	346.16	247.95	671.79	390.6
214.76	596.96	424.97	263.72	616.88	472.31	270.93	915.11	628.88	351.85	832.68	629.84
152.25	316.4	188.86	169.85	384.85	221.45	178.21	554.48	263.12	188.62	529.8	272.01
296.9	456.93	356.5	356.96	750.91	518.46	427.66	741.28	556.82	525.16	734.78	615.66
191.82	395.75	251.87	218.88	517.89	306.32	226.01	631.07	344.41	309.44	616.29	406.58
240.36	652.46	454.09	287.21	564.34	455.77	255.67	557.33	441.65	375.6	666.88	555.21
192.08	399.52	243.59	230.59	460.43	292.78	217.94	492.76	295.5	233.22	670.05	348.36
170.56	521.65	300.51	228.81	619.94	385.27	203.51	666.49	393.15	241.02	832.05	485.84
211.49	515.92	320.96	253.37	566.88	378.7	269.96	680.39	435.76	329.3	774.46	511.44

Fig 4: Graphical representation of combined absolute inequality (Total expenditure) in Lorenz-Gini family (Absolute Gini) in India from 1983 to 2011-12



4.4.1. Figure 4 shows the trend lines of rural, urban and combined absolute inequality in Lorenz-Gini family in India. From figure 4 it is seen that, there is a mixed trend in absolute inequality in this family in India. It is also observed that the urban absolute Gini is greater than rural absolute Gini and the combined Gini lies between rural absolute Gini and urban absolute Gini in the referred years in India.

4.5. Absolute inequality in SD-CV family: The estimated values of rural, urban and combined absolute inequality in SD-CV family measured by standard deviation (SD) in India and its major states for the referred period is given in table 5. From the table 5 it is observed that urban SD is greater than rural SD in all major states of India.

From the table 5 it is also observed that the combined SD lies between rural SD and urban SD in all major states of India.

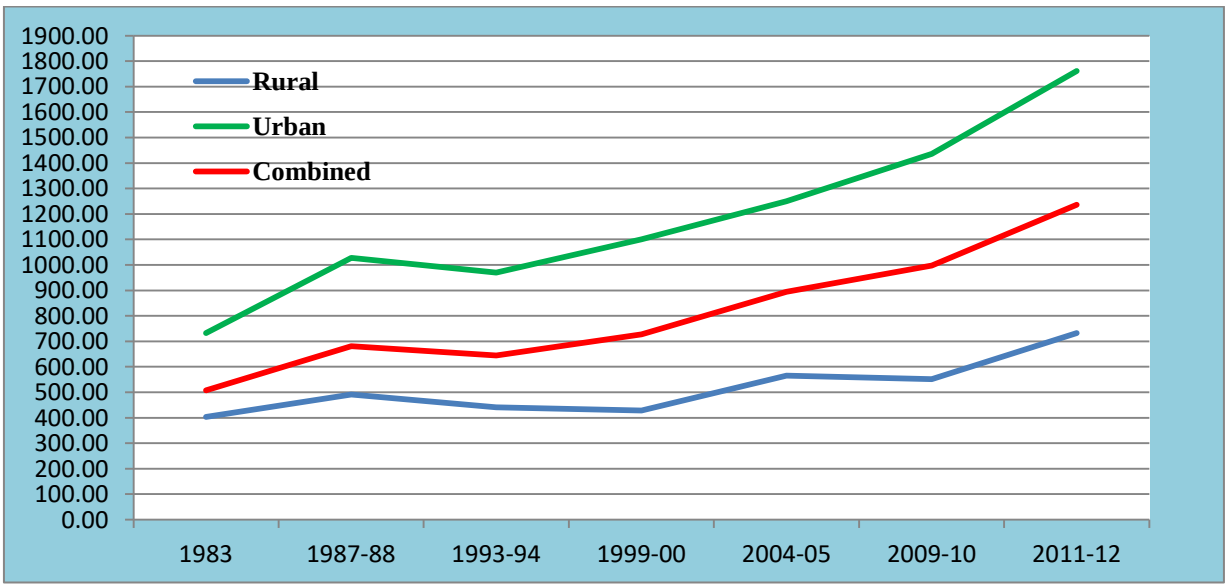
Table 5: Trends and patterns of rural, urban and combined absolute inequality (Total expenditure) in SD-CV family (Standard deviation) in India and its major states from 1983 to 20011-12

(Rs. At 2009-10 prices)

States/All India	1983			1987-88			1993-94		
	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ
Andhra Pradesh	401.96	647.26	476.58	491.00	1060.92	689.22	470.16	803.53	587.38
Assam	252.62	530.89	290.38	328.32	1452.40	564.36	231.25	766.44	370.13
Bihar	287.91	573.84	337.78	387.53	687.92	433.30	261.74	676.69	339.98
Gujarat	381.73	604.29	471.33	363.38	758.49	548.65	377.27	802.79	584.55
Haryana	535.23	797.40	599.97	578.06	821.56	643.74	598.60	766.95	651.84
Karnataka	406.02	730.82	527.48	456.58	913.26	637.74	391.84	786.31	571.67
Kerala	609.86	938.08	686.70	680.99	1137.21	815.13	584.36	1108.43	739.64
Madhya Pradesh	359.21	601.09	428.96	422.61	850.19	571.33	397.79	913.52	580.23
Maharashtra	369.72	784.97	581.24	665.58	1070.83	881.64	464.88	1085.29	835.78
Orissa	307.63	611.78	364.15	347.54	795.37	450.82	297.71	716.22	411.45
Punjab	535.23	797.40	609.56	681.51	756.45	707.04	587.63	820.54	668.75
Rajasthan	531.98	659.19	569.21	543.64	1096.86	702.71	451.11	734.58	535.31
Tamil Nadu	450.48	810.81	595.80	518.46	1018.62	743.32	519.95	999.16	745.87
Uttar Pradesh	371.03	601.37	422.48	419.09	789.62	521.04	411.31	785.42	514.56
West Bengal	336.82	764.11	501.45	397.99	996.05	640.72	415.07	943.62	637.67
All India	403.75	733.03	507.25	491.41	1027.09	680.62	441.22	970.46	644.57

1999-00			2004-05			2009-10			2011-12		
RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ	RINEQ	UINEQ	CINEQ
369.84	873.99	595.54	556.52	1299.56	898.73	575.36	1597.68	1114.81	791.55	1562.00	1176.39
278.23	880.78	455.30	312.70	1070.95	562.06	425.69	948.81	579.89	388.66	1286.63	668.10
272.72	739.74	362.63	264.71	742.79	376.23	290.12	740.60	389.13	394.64	716.84	455.97
416.29	921.80	700.05	489.07	1030.12	841.43	512.38	1239.96	986.55	800.75	1181.23	1052.99
528.64	912.98	670.54	869.65	1328.63	1056.35	838.94	1366.69	1073.17	877.76	2492.98	1727.03
406.24	1052.80	758.14	507.83	1151.14	886.07	366.98	1110.50	862.87	971.55	2557.62	1875.17
653.84	1048.20	774.99	1011.91	1656.90	1269.52	1861.78	3329.31	2619.29	2631.39	2850.34	2749.88
338.78	871.50	566.04	375.50	1235.68	790.29	471.58	1106.42	767.99	518.45	1657.07	1036.41
428.32	1235.07	944.01	571.35	1344.29	1080.05	538.83	2003.37	1524.59	790.16	1914.22	1512.14
304.88	694.87	409.97	373.08	826.59	515.40	343.45	1205.90	643.13	384.54	1106.26	636.62
554.65	942.13	709.44	687.06	1945.02	1342.69	862.72	1552.30	1190.51	1140.49	1622.06	1360.80
373.09	832.66	540.06	477.62	1243.13	783.51	436.95	1454.13	864.07	643.45	1356.32	921.15
504.34	1623.06	1177.91	696.97	1198.04	1027.45	513.27	1104.58	921.32	858.32	1421.88	1222.38
396.86	856.95	540.66	527.95	1072.20	715.28	444.17	1012.82	655.25	492.14	1620.24	928.20
347.97	1157.51	734.09	523.20	1306.76	921.82	404.46	1381.59	935.96	492.35	1952.59	1288.77
428.12	1100.24	727.07	564.85	1250.63	894.49	551.98	1435.79	998.04	731.89	1761.10	1236.30

Fig 5: Graphical representation of combined absolute inequality (Total expenditure) in SD-CV family (Standard deviation) in India from 1983 to 2011-12



4.5.1. Figure 5 shows the trend lines of rural, urban and combined absolute inequality in SD-CV family in India. From the figure 5 it is seen that, there is a mixed trend in absolute inequality in this family in India. It is also observed that the urban SD is greater than rural SD and the combined SD lies between rural SD and urban SD in the referred years in India.

5. Conclusion:

5.1. The main theme of this paper is to have the trends and pattern of overall/combined inequality in India and its major states for the period 1983 to 2011-12. The combined inequality can be estimated by combining the raw data of consumption expenditure for rural and urban sector with their corresponding population. This is the novelty of this paper in this field. For India, NSSO collects and publishes the household expenditure data at the national level annually and/or quinquennially and estimates inequality by using such expenditure data by two very popular and convenient relative measures – the Gini coefficient and the Lorenz curve. However, many researchers raise objection against these two relative measures and they conclude that both relative measure of inequality and absolute measure of inequality in any family should have equal importance in inequality judgment. Hence, we consider both the relative measure of inequality and absolute measure of inequality in Lorenz-Gini family and SD-CV family and try to give the trends and patterns of rural inequality, urban inequality and combined inequality in India and its major statesfor the period 1983 to 2011-12.
From the estimated results, it is observed that

5.1.1. Urban Gini coefficient is greater than rural Gini coefficient in most of the cases. However, the opposite result is observed for some states in some years. The combined Gini coefficient lies between rural Gini coefficient and urban Gini coefficient in most of the cases. However, in some cases the combined Gini coefficient lies above the rural Gini coefficient and urban Gini coefficient. This happens mainly due to either the larger MPCE gap or larger inequality gap or the ratio of these two gaps.

5.1.2. Urban CV is greater than rural CV in most of the cases. However, the opposite result is observed for some states in some years. The combined CV lies between rural CV and urban CV in most of the cases. However, in some cases the combined CV lies above the rural CV and urban CV. This happens mainly due to either the larger MPCE gap or larger inequality gap or the ratio of these two gaps.

5.1.3. Urban CV-index is greater than rural CV-index. The combined CV-index either lies between rural CV-index and urban CV-index or lies below the rural CV-index.

5.1.4. Urban absolute Gini is greater than rural absolute Gini and the combined absolute Gini lies between rural absolute Gini and urban absolute Gini in India and its major states.

5.1.5. Urban SD is greater than rural SD and the combined SD lies between rural SD and urban SD in India and its major states.

Appendix

Appendix Table A1: Trends and patterns of rural, urban and combined monthly per capita consumption expenditure (Total expenditure) in India and its major states from 1983 to 2011-12

States/All India	1983			1987-88			1993-94			1999-00		
	Rural	Urban	Combined	Rural	Urban	Combined	Rural	Urban	Combined	Rural	Urban	Combined
Andhra Pradesh	651.47	1043.96	747.73	747.34	1166.88	856.59	760.77	1197.03	875.87	759.43	1364.53	921.42
Assam	637.92	1047.57	676.87	716.86	1366.33	784.12	680.16	1344.53	757.03	713.42	1436.15	804.76
Bihar	529.25	942.27	578.35	637.38	944.94	671.14	575.26	1033.11	622.47	644.73	1058.42	687.66
Gujarat	692.80	1112.87	826.78	752.33	1217.74	907.15	799.30	1329.12	983.89	923.03	1572.97	1161.19
Haryana	962.64	1259.72	1028.75	1001.83	1275.72	1065.67	1014.57	1386.89	1109.15	1196.01	1608.96	1311.76
Karnataka	659.60	1131.30	797.46	696.00	1124.70	824.65	709.86	1238.28	875.91	835.89	1607.04	1092.75
Kerala	819.70	1199.59	900.84	986.94	1349.00	1076.19	1028.80	1446.28	1129.54	1281.94	1645.19	1370.35
Madhya Pradesh	567.47	985.40	655.48	662.40	1195.76	780.79	664.09	1194.15	791.20	672.19	1223.48	815.44
Maharashtra	623.47	1253.94	849.36	750.37	1418.24	999.43	718.51	1550.42	1048.43	831.69	1717.01	1202.29
Odisha	557.48	1027.76	614.61	595.10	1137.69	664.44	579.21	1178.00	661.43	624.76	1091.05	693.31
Punjab	962.64	1259.72	1045.20	1142.35	1367.90	1206.55	1141.03	1494.61	1249.39	1243.62	1585.57	1357.26
Rajasthan	716.96	1087.77	797.11	829.99	1205.34	914.02	849.55	1242.94	939.51	918.93	1403.85	1031.47
Tamil Nadu	633.58	1113.75	788.60	720.08	1260.67	895.84	773.74	1282.62	961.53	860.65	1714.01	1225.36
Uttar Pradesh	589.88	921.53	651.22	693.85	1099.94	772.15	721.95	1138.29	805.14	781.23	1217.78	871.01
West Bengal	589.88	1155.99	741.39	699.45	1262.28	852.44	734.63	1387.68	912.10	761.42	1528.71	972.99
All India	634.82	1115.72	748.27	737.86	1266.45	868.73	741.54	1340.42	897.56	813.92	1508.13	1003.71

States/All India	2004-05			2009-10			2011-12		
	Rural	Urban	Combined	Rural	Urban	Combined	Rural	Urban	Combined
Andhra Pradesh	884.77	1478.89	1055.51	1020.14	1982.23	1327.67	1287.75	2098.47	1560.15
Assam	820.74	1536.15	916.22	863.47	1540.27	957.69	876.05	1699.53	992.29
Bihar	630.25	1010.95	670.88	681.03	1092.33	726.75	844.10	1181.57	882.32
Gujarat	900.69	1619.22	1179.97	994.92	1859.01	1354.07	1226.79	1994.41	1555.02
Haryana	1303.83	1658.64	1412.78	1393.59	1898.18	1563.84	1580.73	2729.04	1983.22
Karnataka	768.28	1500.17	1027.14	806.54	1716.38	1150.15	1175.59	2468.01	1677.18
Kerala	1530.87	1874.31	1636.42	1850.68	2663.45	2195.24	2108.11	2571.66	2333.44
Madhya Pradesh	663.42	1312.10	839.44	796.59	1469.35	982.37	877.52	1650.32	1091.07
Maharashtra	857.89	1667.24	1209.18	1010.93	2231.98	1557.63	1204.15	2273.99	1688.57
Odisha	602.72	1099.58	679.90	682.80	1425.41	804.47	739.32	1481.80	863.53
Punjab	1279.44	1925.42	1506.40	1479.80	1992.68	1669.01	1744.02	2207.08	1917.95
Rajasthan	892.74	1399.71	1013.34	1004.48	1669.50	1167.82	1203.22	1849.83	1364.36
Tamil Nadu	909.88	1567.60	1212.48	968.44	1678.69	1309.21	1263.92	1996.44	1618.68
Uttar Pradesh	804.80	1244.40	898.11	828.67	1364.99	946.59	879.23	1585.31	1036.78
West Bengal	849.35	1631.43	1076.19	855.10	1735.66	1130.37	960.17	2049.85	1313.09
All India	844.32	1527.98	1041.13	927.70	1785.81	1189.42	1074.20	2012.62	1367.48

Appendix Table A2: Trends and patterns of MPCE gap, Relative income inequality gap in Lorenz-Gini family and their Ratios in India and its major states from 1983 to 2011-12

States/All India	1983			1987-88			1993-94		
	MPCE Gap	INEQ Gap	Ratio	MPCE Gap	INEQ Gap	Ratio	MPCE Gap	INEQ Gap	Ratio
Andhra Pradesh	-0.463	-0.045	10.25	-0.438	-0.180	2.44	-0.446	-0.114	3.90
Assam	-0.486	-0.214	2.27	-0.624	-0.411	1.52	-0.656	-0.482	1.36
Bihar	-0.561	-0.154	3.65	-0.389	-0.117	3.31	-0.569	-0.151	3.77
Gujarat	-0.465	-0.045	10.24	-0.472	-0.201	2.35	-0.498	-0.207	2.40
Haryana	-0.267	-0.140	1.91	-0.241	-0.056	4.31	-0.310	0.071	-4.36
Karnataka	-0.527	-0.099	5.34	-0.471	-0.016	29.00	-0.542	-0.183	2.97
Kerala	-0.376	-0.116	3.25	-0.310	-0.180	1.72	-0.337	-0.165	2.04
Madhya Pradesh	-0.538	0.006	-84.53	-0.574	-0.132	4.34	-0.570	-0.173	3.29
Maharashtra	-0.672	-0.151	4.45	-0.616	-0.061	10.06	-0.733	-0.147	5.00
Odisha	-0.593	-0.101	5.90	-0.626	-0.191	3.28	-0.682	-0.210	3.25
Punjab	-0.267	-0.140	1.91	-0.180	0.059	-3.02	-0.268	-0.057	4.72
Rajasthan	-0.411	0.122	-3.38	-0.369	-0.104	3.54	-0.376	-0.109	3.44
Tamil Nadu	-0.550	-0.067	8.14	-0.546	-0.092	5.93	-0.495	-0.102	4.85
Uttar Pradesh	-0.439	-0.070	6.24	-0.453	-0.162	2.79	-0.448	-0.140	3.19
West Bengal	-0.649	-0.143	4.54	-0.574	-0.336	1.71	-0.615	-0.272	2.27
All India	-0.549	-0.092	5.95	-0.527	-0.166	3.18	-0.575	-0.185	3.10

MPCE Gap = {(RMPCE – UMPCE) / (RMPCE + UMPCE)/2}
INEQ Gap = {(RINEQ – UINEQ) / (RINEQ + UINEQ)/2}
Ratio refers to the ratio MPCE gap and inequality gap

1999-00			2004-05			2009-10			2011-12		
MPCE Gap	INEQ Gap	Ratio	MPCE Gap	INEQ Gap	Ratio	MPCE Gap	INEQ Gap	Ratio	MPCE Gap	INEQ Gap	Ratio
-0.570	-0.282	2.02	-0.503	-0.243	2.07	-0.641	-0.315	2.03	-0.479	-0.175	2.73
-0.672	-0.423	1.59	-0.607	-0.486	1.25	-0.563	-0.282	2.00	-0.639	-0.453	1.41
-0.486	-0.428	1.14	-0.464	-0.470	0.99	-0.464	-0.384	1.21	-0.333	-0.245	1.36
-0.521	-0.203	2.57	-0.570	-0.143	4.00	-0.606	-0.242	2.50	-0.477	-0.029	16.58
-0.294	-0.181	1.63	-0.240	-0.113	2.12	-0.307	-0.179	1.72	-0.533	-0.388	1.37
-0.631	-0.288	2.19	-0.645	-0.316	2.04	-0.721	-0.352	2.05	-0.709	-0.324	2.19
-0.248	-0.173	1.43	-0.202	-0.158	1.27	-0.360	-0.177	2.03	-0.198	-0.017	11.44
-0.582	-0.264	2.20	-0.657	-0.379	1.73	-0.594	-0.220	2.71	-0.611	-0.361	1.69
-0.695	-0.295	2.35	-0.641	-0.185	3.47	-0.753	-0.419	1.80	-0.615	-0.225	2.74
-0.544	-0.174	3.13	-0.584	-0.216	2.70	-0.704	-0.394	1.79	-0.669	-0.334	2.00
-0.242	-0.188	1.29	-0.403	-0.332	1.21	-0.295	-0.251	1.18	-0.234	-0.100	2.34
-0.418	-0.298	1.40	-0.442	-0.406	1.09	-0.497	-0.507	0.98	-0.424	-0.257	1.65
-0.663	-0.307	2.16	-0.531	-0.131	4.05	-0.537	-0.228	2.35	-0.449	-0.117	3.85
-0.437	-0.286	1.52	-0.429	-0.254	1.69	-0.489	-0.314	1.56	-0.573	-0.458	1.25
-0.670	-0.415	1.62	-0.631	-0.341	1.85	-0.680	-0.469	1.45	-0.724	-0.472	1.54
-0.598	-0.273	2.19	-0.576	-0.211	2.73	-0.632	-0.268	2.36	-0.608	-0.226	2.69

Appendix Table A3: Trends and patterns of MPCE gap, Relative income inequality gap in SD-CV family and their Ratios in India and its major states from 1983 to 2011-12

States/All India	1983			1987-88			1993-94		
	MPCE Gap	INEQ Gap	Ratio	MPCE Gap	INEQ Gap	Ratio	MPCE Gap	INEQ Gap	Ratio
Andhra Pradesh	-0.463	-0.005	95.45	-0.463	-0.322	1.36	-0.463	-0.084	5.32
Assam	-0.486	-0.245	1.98	-0.486	-0.796	0.78	-0.486	-0.507	1.29
Bihar	-0.561	-0.113	4.98	-0.561	-0.180	2.16	-0.561	-0.360	1.58
Gujarat	-0.465	0.015	-31.81	-0.465	-0.252	1.88	-0.465	-0.245	2.03
Haryana	-0.267	-0.130	2.06	-0.267	-0.110	2.19	-0.267	0.065	-4.79
Karnataka	-0.527	-0.048	10.92	-0.527	-0.209	2.25	-0.527	-0.140	3.88
Kerala	-0.376	-0.050	7.55	-0.376	-0.200	1.55	-0.376	-0.298	1.13
Madhya Pradesh	-0.538	0.037	-14.54	-0.538	-0.108	5.30	-0.538	-0.243	2.34
Maharashtra	-0.672	-0.054	12.40	-0.672	0.159	-3.86	-0.672	-0.079	9.32
Odisha	-0.593	-0.074	8.06	-0.593	-0.176	3.55	-0.593	-0.168	4.07
Punjab	-0.267	-0.130	2.06	-0.267	0.078	-2.30	-0.267	-0.064	4.20
Rajasthan	-0.411	0.202	-2.04	-0.411	-0.326	1.13	-0.411	-0.107	3.52
Tamil Nadu	-0.550	-0.024	23.26	-0.550	-0.115	4.74	-0.550	-0.147	3.36
Uttar Pradesh	-0.439	-0.037	11.93	-0.439	-0.174	2.60	-0.439	-0.190	2.35
West Bengal	-0.649	-0.146	4.44	-0.649	-0.323	1.78	-0.649	-0.185	3.33
All India	-0.549	-0.032	16.91	-0.549	-0.196	2.69	-0.549	-0.196	2.94

1999-00			**2004-05**			**2009-10**			**2011-12**		
MPCE Gap	**INEQ Gap**	**Ratio**	**MPCE Gap**	**INEQ Gap**	**Ratio**	**MPCE Gap**	**INEQ Gap**	**Ratio**	**MPCE Gap**	**INEQ Gap**	**Ratio**
-0.463	-0.272	2.09	-0.463	-0.331	1.52	-0.463	-0.353	1.81	-0.463	-0.191	2.51
-0.486	-0.445	1.51	-0.486	-0.586	1.04	-0.486	-0.222	2.54	-0.486	-0.522	1.22
-0.561	-0.489	0.99	-0.561	-0.545	0.85	-0.561	-0.457	1.02	-0.561	-0.259	1.29
-0.465	-0.260	2.00	-0.465	-0.158	3.61	-0.465	-0.257	2.35	-0.465	0.097	-4.91
-0.267	-0.249	1.18	-0.267	-0.183	1.31	-0.267	-0.179	1.72	-0.267	-0.488	1.09
-0.527	-0.296	2.13	-0.527	-0.149	4.33	-0.527	-0.348	2.07	-0.527	-0.225	3.15
-0.376	-0.222	1.12	-0.376	-0.289	0.70	-0.376	-0.216	1.66	-0.376	0.119	-1.67
-0.538	-0.343	1.70	-0.538	-0.498	1.32	-0.538	-0.239	2.48	-0.538	-0.518	1.18
-0.672	-0.331	2.10	-0.672	-0.191	3.36	-0.672	-0.510	1.48	-0.672	-0.248	2.48
-0.593	-0.265	2.05	-0.593	-0.194	3.01	-0.593	-0.509	1.39	-0.593	-0.358	1.87
-0.267	-0.285	0.85	-0.267	-0.612	0.66	-0.267	-0.288	1.03	-0.267	-0.117	2.01
-0.411	-0.375	1.11	-0.411	-0.496	0.89	-0.411	-0.668	0.74	-0.411	-0.313	1.35
-0.550	-0.471	1.41	-0.550	0.002	-231.91	-0.550	-0.215	2.49	-0.550	-0.048	9.44
-0.439	-0.323	1.35	-0.439	-0.271	1.58	-0.439	-0.322	1.52	-0.439	-0.585	0.98
-0.649	-0.494	1.36	-0.649	-0.261	2.41	-0.649	-0.509	1.34	-0.649	-0.600	1.21
-0.549	-0.324	1.84	-0.549	-0.201	2.87	-0.549	-0.299	2.12	-0.549	-0.249	2.44

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PART-II

Highlights of Report Released by NSSO

(The 'Highlights' are reproduced from related report prepared by Survey Design and Research Division (SDRD) of NSSO. For details the reader may refer to the related Main Report)

Highlights of Recent Survey Report Released by NSSO
(Report No. 581)

1. In this part of the Journal, Highlights of the report based on 73rd Round (July, 2015 – June, 2016) of NSS, released after publication of 103rd issue of "SARVEKSHANA" are presented.

2. The highlights of the surveys during 73rd Round of NSS, included in this issue, are taken from following report:

NSS Report No. 581: Operational Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India

Highlights - Report No. 581: Operational Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India
NSS 73rd Round (July, 2015 – June, 2016)

The highlights are based on the information collected through Survey on Unincorporated Non-Agricultural Enterprises (Excluding Construction) conducted in the 73rd round of NSS during July 2015 to June 2016 in the whole Indian Union, with a sample of 290113 enterprises (143179 enterprises from 8488 villages and 146934 enterprises from 7860 urban EBs/ UFS blocks).

Some of the highlights related to the operational characteristics of the unincorporated non-agricultural enterprises (excluding construction) as obtained from the survey are presented below:

- During 2015-16, 6.34 crore[1] unincorporated non-agricultural enterprises excluding construction were estimated at the all-India level. Out of them, 31% enterprises were engaged in manufacturing, 36% enterprises were in trading and 33% enterprises were in service sector.

- Of the total number of unincorporated non-agricultural enterprises estimated, about 51 per cent were located in rural areas.

- 84% of unincorporated non-agricultural enterprises under survey coverage were OAEs. At all-India level, OAEs outnumber establishments in all the three broad activity categories namely 'Manufacturing' (86%), 'Trade' (85%) and 'Other Services' (83%).

- Uttar Pradesh had the highest share (14.2%) in total number of unincorporated non-agricultural enterprises followed by West Bengal (14.0%), Tamil Nadu (7.8%), Maharashtra (7.5%) and Karnataka (6.1%). These five states accounted for nearly half of the unincorporated non-agricultural enterprises at all-India level.

- About 11.13 crore workers were engaged in unincorporated non-agricultural enterprise activities excluding construction during 2015-16. Out of the total estimated number of workers, 55% were located in urban areas.

- The category 'trading' had highest percentage of workers for urban (36.9%) and combined sector (34.8%). In the rural sector 'manufacturing' had the highest percentage of workers (37.4%)

[1] (1 crore = 10^7)

- Uttar Pradesh had the highest share in total number of workers (14.9%) followed by West Bengal (12.2%), Tamil Nadu (8.7%) Maharashtra (8.2%) and Karnataka (6.4%). These five states accounted for nearly half of the total workers of the unincorporated non-agricultural sector excluding construction.

- Proprietary enterprises (i.e. enterprises owned by a single household) had the highest share (96%) of unincorporated non-agricultural enterprises. Nearly 20% of these were owned by females. Only 2% of enterprises were operated on a partnership basis.

- At all-India level, 19.5% of the proprietary enterprises were headed by a female. The share of female headed proprietary enterprises was 45% in manufacturing, 8.7% in trading and 7.4% in other services.

- The perennial enterprises are those which worked more or less regularly throughout the year. About 98% of the total unincorporated non-agricultural enterprises were perennial while the seasonal and casual enterprises together constituted a little more than 1.7% of the total number of enterprises.

- About 93 percent of the unincorporated non-agricultural enterprises had worked more than 9 months during the last 365 days while about 2% of the enterprises under survey coverage had operated for less than a quarter of the same period.

- About 65% of all unincorporated non-agricultural enterprises had normally worked 8 hours or more in a day. In urban areas 74% of unincorporated non-agricultural enterprises worked 8 hours or more in a day while in rural area, nearly 56% of them worked 8 hours or more a day. Only about 5% of unincorporated non-agricultural enterprises had worked less than 4 hours in a normal day.

- About 87% unincorporated non-agricultural enterprises run the business at fixed location either within the household premises or outside and about 13% operated their business without any fixed location. Around 2% of the enterprises under survey coverage operated without any structure but had a fixed location while about 9% unincorporated non-agricultural enterprises were operated as street vendors and 4.4% were operated in mobile market.

- At all-India level, about 88% of unincorporated non-agricultural enterprises were not maintaining any sort of accounts. This proportion was nearly 93% for OAEs and 64% for establishments.

- About 66% of unincorporated non-agricultural enterprises were owned by persons belonging to Scheduled Tribes (ST), Scheduled Castes (SC) and Other Backward Classes (OBC). This proportion was more in case of OAEs (69%) than establishments (52%). Again, more OAEs in the rural areas (75%) were run by entrepreneurs from the backward sections than OAEs in urban areas (62%).

- About 31% of all enterprises under survey coverage were registered under some Act or with some registration authority. The overall proportion of registered enterprises under survey coverage was higher in urban areas (41.4%) as compared to rural areas (20.9%). 'Manufacturing' sector (84.9%) had the highest percentage of unregistered enterprises followed by 'Trade' (63.1%) and 'Other Services' (60.7%).

- About 61% of all unincorporated non-agricultural enterprises reported not having faced any specific problem in their day-to-day operation. 'Shrinking or fall of demand' (16.8%) and 'non recovery of financial dues' (9.5%) were the two main problems faced by the enterprises.

- Only 10 percent of unincorporated non-agricultural enterprises had undertaken at least some work on contract basis. This percentage was higher for manufacturing enterprises (31.1%).

- About 46% of the unincorporated non-agricultural enterprises did not have toilet facility at workplace. This percentage was higher in rural areas (55.1%) than in urban areas (36.7%)

- About one-fifth of the unincorporated non-agricultural enterprises did not generate any type of solid waste as part of their operation. About 35% of the enterprises had provision for solid waste management and the remaining 45% did not have any provision for solid waste management.

- About three-fourth of the unincorporated non-agricultural enterprises did not generate any liquid waste during their operation. Only about 1%of the enterprises had some provision for liquid waste management

- About 3% of unincorporated non-agricultural enterprises pursued mixed activities. Among these, about 79% were OAEs. Percentage of 'other services' enterprises pursuing mixed activities was more in comparison to manufacturing and trading enterprises.

- About 2% of unincorporated non-agricultural enterprises had reported receiving some assistance from government. About 1% of unincorporated non-agricultural enterprises received assistance from the government in the form of financial loans.

- At all India level, 5% of the enterprises reported having used computer and 4% of the enterprises used internet for entrepreneurial activities during the previous 365 days/ year of their operation

खण्ड-III हिंदी

सर्वेक्षण

राष्ट्रीय प्रतिदर्श सर्वेक्षण कार्यालय
की पत्रिका

भाग-XXXIII सं॰ 3 और 4
अंक संख्या 104वां
मार्च, 2018

सत्यमेव जयते

राष्ट्रीय प्रतिदर्श सर्वेक्षण कार्यालय
सांख्यिकी और कार्यक्रम कार्यान्वयन मंत्रालय
भारत सरकार
नई दिल्ली

मूल्य: अंतर्देशीय ₹300/-

सर्वेक्षण
भाग-XXXIII सं॰ 1 और 2

एनएसएसओ द्वारा जारी की गई रिपोर्ट की मुख्य बातें

(मुख्य बातें एनएसएसओ के एस.डी.आर.डी. प्रभाग द्वारा तैयार की गई सम्बंधित रिपोर्ट से उद्धृत की गई हैं। विवरण के लिए पाठक सम्बंधित मुख्य रिपोर्ट देख सकते हैं)

मुख्य बातें- रिपोर्ट सं. 581 : भारत में असमाविष्ट गैर-कृषि उद्यमों (निर्माण को छोड़कर) के प्रचालनात्मक विशेषताएं

एनएसएस 73**वां दौर** (**जुलाई** 2015 - **जून**, 2016)

यह मुख्य विशेषताएं जुलाई 2015 से जून 2016 के दौरान रा.प्र.स. के 73वें दौर में असमाविष्ट गैर-कृषि उद्यमों (निर्माण को छोड़कर) पूरे भारतीय संघ में कियें गए सर्वेक्षण पर आधारित है, जिसमे 290113 उद्यमों के प्रतिदर्शो को (8488 ग्रामों से 143179 उद्यम एवं 7860 नगरीय ई.बी./यू.एफ.एस. खण्डों से 146934 उद्यम) सम्मलित किया गया है ।

इस सर्वेक्षण से प्राप्त असमाविष्ट गैर-कृषि उद्यमों (निर्माण को छोड़कर) की प्रचालनात्मक विशिष्टताओं से संबंधित कुछ मुख्य विशेषताएं नीचे प्रस्तुत किए गए हैं:

- वर्ष 2015-16 के दौरान, 6.34 करोड़ असमाविष्ट गैर-कृषि उद्यमों (निर्माण को छोड़कर) को अखिल भारतीय स्तर पर आकलित किया गया। इनमें से 31**%** उद्यम विनिर्माण में, 36**%** उद्यम व्यापार में और 33**%** सेवा क्षेत्र में कार्यरत थे ।
- आकलित असमाविष्ट गैर-कृषि उद्यमों की कुल संख्या में से लगभग 51**%** ग्रामीण क्षेत्रों में स्थित थे ।
- सर्वेक्षण व्याप्ति के अन्तर्गत 84**%** असमाविष्ट गैर-कृषि उद्यमस्व-कार्यरत उद्यम थे । अखिल -भारतीय स्तर पर, स्व-कार्यरत अधिष्ठानों का प्रतिशत तीनों विस्तृत कार्यकलाप श्रेणियों यथा 'विनिर्माण' (86**%**) 'व्यापार' (85**%**) एवं 'अन्य सेवायें' (83**%**) के अधिष्ठानों से अधिक था ।
- असमाविष्ट गैर-कृषि उद्यमोंकी कुल संख्या उत्तर प्रदेश का हिस्सा सबसे अधिक (14.2**%**) था, उसके पश्चात् पश्चिम बंगाल (14.0**%**), तमिलनाडु (7.8**%**), महाराष्ट्र (7.5**%**), और कर्नाटक (6.1**%**) थे । अखिल भारतीय स्तर पर इन पांचों राज्यों की हिस्सेदारी असमाविष्ट गैर-कृषि उद्यमों की लगभग आधी थी ।
- वर्ष 2015-16 के दौरानलगभग 11.13 करोड़ कामगार असमाविष्ट गैर-कृषि उद्यम कार्यकलापों (निर्माण को छोड़कर) में संलग्न थे। कुल आकलित कामगारों की संख्या में से 55**%** कामगार नगरीय क्षेत्रों में स्थित थे ।

- 'व्यापार'वर्ग के अंतर्गत कामगारों का सबसे अधिक प्रतिशत नगरीय क्षेत्र (36.9%) और संयुक्त क्षेत्र (34.8%) था। ग्रामीण क्षेत्र में कामगारों कासबसे अधिक प्रतिशत (37.4%) 'विनिर्माण' में था ।
- कामगारों की कुल संख्या में उत्तर प्रदेश का हिस्सा सबसे अधिक (14.9%) था, जिसके पश्चात् पश्चिम बंगाल (12.2%), तमिलनाडु (8.7%), महाराष्ट्र (8.2%), एवं कर्नाटक (6.4%) था। इन पाँचों राज्यों की हिस्सेदारी असमाविष्ट गैर-कृषि क्षेत्र (निर्माण को छोड़कर) के कुल कामगारों की लगभग आधी थी।
- असमाविष्ट गैर-कृषि उद्यमोंमें सबसे अधिक हिस्सा (96%) मालिकाना उद्यमों (अर्थात्, एक एकल परिवार द्वारा धारित उद्यम) का था । इनमें से लगभग 20% का स्वामित्व महिलाओं के पास था। केवल 2% उद्यम साझेदारी आधार पर चल रहे थे।
- बारहमासी उद्यम वे उद्यम हैं, जो पूरे वर्ष कमोबेश नियमित आधार पर काम करते हैं। कुल असमाविष्ट गैर-कृषि उद्यमोंके लगभग 98% उद्यम बारहमासी थे जबकि मौसमी और आकस्मिक उद्यमों का कुल मिलाकर प्रतिशत कुल उद्यमों की संख्या के 1.7% से थोड़ा अधिक था ।
- लगभग 93% असमाविष्ट गैर-कृषि उद्यमों ने पिछले 365 दिनों के दौरान 9 महीनों से अधिक कार्य किया, जबकि सर्वेक्षण व्याप्ति के अधीन लगभग 2% उद्यमों ने उसी अवधि में एक चौथाई से भी कम अवधि के लिए कार्य किया ।
- असमाविष्ट गैर-कृषि उद्यमों के लगभग 65% उद्यमों ने एक दिन में सामान्यत: 8 घंटे या उससे अधिक कार्य किया। नगरीय क्षेत्रों में 74% असमाविष्ट गैर-कृषि उद्यमों ने एक दिन में 8 घंटे या उससे अधिक काम किया जबकि ग्रामीण क्षेत्रों में उनके लगभग 56% ने एक दिन में 8 घंटे या उससे अधिक का कार्य किया। असमाविष्ट गैर-कृषि उद्यमों के केवल लगभग 5% ने एक सामान्य कार्य दिवस में चार घंटे से कम का कार्य किया।
- असमाविष्ट गैर-कृषि उद्यमों के लगभग 87% उद्यमों ने अपना व्यवसाय एक स्थायी स्थान पर, या तो अपने मकान के परिसर में या परिसर से बाहर संचालित किया एवं लगभग 13% ने अपना व्यवसाय बगैर किसी स्थायी स्थान के किया। सर्वेक्षण व्याप्ति के अन्तर्गत लगभग 2% उद्यमों ने अपना व्यवसाय बगैर किसी संरचना के संचालित किया लेकिन उनका स्थान निश्चित था, जबकि लगभग 9%

असमाविष्ट गैर-कृषि उद्यमों ने राह-विक्रेताओं (स्ट्रीट वेंडरों) के रूप में काम किया और 4.4% ने गमनशील (मोबाइल) मार्केट में अपना व्यवसाय संचालित किया ।

- अखिल भारतीय स्तर पर, लगभग 88% असमाविष्ट गैर-कृषि उद्यम किसी भी प्रकार के बही खाते का रख-रखाव नहीं कर रहे थे। यह अनुपात स्व-कार्यरत उद्यमोंके लिए 93%और अधिष्ठानों के लिए 64% था ।
- लगभग 66% असमाविष्ट गैर-कृषि उद्यमों का स्वामित्व अनुसूचित जन-जातियों (एस.टी.), अनुसूचित जातियों (एस.सी.) और अन्य पिछड़ा वर्ग (ओ.बी.सी.) में शामिल व्यक्तियों के पास था। यह अनुपात अधिष्ठानों (52%) की तुलना में स्व-कार्यरत उद्यमों (69%) में अधिक था। पुन: स्व-कार्यरत उद्यमों में पिछड़े वर्गों के उद्यमियों द्वारा ग्रामीण क्षेत्रों में 75% स्व-कार्यरत उद्यम संचालित किए गए, जो कि नगरीय क्षेत्रों में संचालित स्व-कार्यरत उद्यमों (62%) से अधिक थे ।
- सर्वेक्षण व्याप्ति के अंतर्गत सभी उद्यमों के लगभग 31% उद्यम किसी भी अधिनियम या किसी भी पंजीकरण प्राधिकारी के अधीन पंजीकृत थे। सर्वेक्षण व्याप्ति के अन्तर्गत पंजीकृत उद्यमों का समग्र अनुपात नगरीय क्षेत्रों में (41.4%), ग्रामीण क्षेत्रों में (20.9%) की तुलना में अधिक था। "विनिर्माण क्षेत्र" (84.9%) के अंतर्गत अपंजीकृत उद्यमों का प्रतिशत सबसे ज्यादा था, उसके बाद "व्यापार" (63.1%) एवं "अन्य सेवाएं" (60.7%) का स्थान था।
- सभी असमाविष्ट गैर-कृषि उद्यमों के लगभग 61% उद्यमों ने अपने दैनिक कार्य में किसी भी प्रकार की समस्या का सामना नहीं करने की सूचना दी। "मांग का कम होना या उसमें गिरावट" (16.8%) एवं "वित्तीय बकायों की वसूली न होना" (9.5%) उद्यमों की दो प्रमुख समस्याएं थी।
- केवल 10% असमाविष्ट गैर-कृषि उद्यमों ने संविदा आधार पर कम से कम कुछ कार्य किया। यह प्रतिशत विनिर्माण उद्यमों के लिए अधिक (31.1%) था ।
- लगभग 46% असमाविष्ट गैर-कृषि उद्यमों में कार्यस्थल पर शौचालय की सुविधा नहीं थी । यह प्रतिशत नगरीय क्षेत्रों (36.7%) की तुलना में ग्रामीण क्षेत्रों (55.1%) में अधिक था।
- असमाविष्ट गैर-कृषि उद्यमों के लगभग पाँचवे हिस्से ने अपने संचालन कार्य में किसी प्रकार का ठोस अवशिष्ट उत्पन्न नहीं किया। लगभग 35% उद्यमों के पास ठोस अवशिष्ट प्रबंधन का प्रावधान था एवं शेष 45% के पास ठोस अवशिष्ट प्रबंधन का कोई प्रावधान नहीं था।

- लगभग तीन चौथाई असमाविष्ट गैर-कृषि उद्यमों ने अपने संचालन कार्य के दौरान किसी भी प्रकार का तरल अवशिष्ट उत्पन्न नहीं किया। केवल लगभग 1% उद्यमों के पास तरल अवशिष्ट प्रबंधन का कुछ प्रावधान था ।
- लगभग 3% असमाविष्ट गैर-कृषि उद्यमों ने मिश्रित क्रियाकलाप किया । इनमें से लगभग 79% "स्व-कार्यरत" उद्यम थे। मिश्रित क्रियाकलाप करने वाले "अन्य सेवाएं" उद्यमों का प्रतिशत विनिर्माण और व्यापार उद्यमों की तुलना में अधिक था।
- लगभग 2% असमाविष्ट गैर-कृषि उद्यमों ने सरकार से कुछ सहायता प्राप्त करने की सूचना दी। लगभग 1% असमाविष्ट गैर-कृषि उद्यमों ने वित्तीय ऋणों के रूप में सरकार से सहायता प्राप्त की ।
- अखिल भारतीय स्तर पर, पिछले 365 दिनों/उनके संचालन के वर्ष के दौरान उद्यमी कार्यकलाप के लिए 5% उद्यमों ने कम्प्यूटर प्रयोग करने की सूचना दी एवं 4% उद्यमों ने इन्टरनेट का प्रयोग किया ।

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(A) **101ST ISSUE**

PART – I: TECHNICAL PAPERS

PART-II: HIGHLIGHTS OF SOME OF THE REPORTS RELEASED BY NSSO
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PART – TECHNICAL PAPERS

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(C) **103ND ISSUE**

PART – TECHNICAL PAPERS

PART-II: HIGHLIGHTS OF SOME OF THE REPORTS RELEASED BY NSSO
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1300

The objective of this journal is to present analytical articles based on the results published by NSSO. 'Sarvekshana' welcomes contributions based on the NSS data and those relating to its methodology

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