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EUROPEAN UNION (EUROSTAT)

ORGANISATION FOR ECONOMIC COOPERATION
AND DEVELOPMENT (OECD)
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FOR ASIA AND THE PACIFIC (ESCAP)

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Topic (ii): Streamlining statistical production

CONSUMER PRICE INDICES COMPILED BY THE CSO, INDIA

1. INTRODUCTION

1.1 Consumer Price Indices (CPI) released at all India level are CPI for Industrial Workers (IW), CPI for Agricultural Labourers (AL)/ Rural Labourers (RL) and CPI (Rural/Urban/Combined). While the first two are compiled and released by the Labour Bureau in the Ministry of Labour and Employment, the third by the Central Statistics Office (CSO) in the Ministry of Statistics and Programme Implementation. The CSO releases comprehensive Consumer Price Indices (CPI) on base 2010=100 for all-India and States/UTs (provinces) separately for rural, urban and combined every month with effect from January, 2011 and annual inflation rates from January 2012 onwards. One of the most important features of this CPI series released on 12th of every month is that these indices cover the entire population of the country and their diverse consumption patterns.

1.2 Apart from the brief description of weighting diagram, this paper has main focus on the process of data collection and validation using the web portal system.

2. WEIGHTING DIAGRAM

2.1 The consumption patterns (weighting diagrams) for this series of CPI have been derived on the basis of average monthly consumer expenditure of an urban/rural household obtained from the results of the Consumer Expenditure Survey conducted by the National sample Survey Office during 2004-05. After exclusion of non-consumption expenditure from the average monthly consumption expenditure, the remaining items were classified into several consumption groups and subgroups considering Classification of Individual Consumption according to Purpose (COICOP), the standard international classification as

well as present classification of items adopted in the existing CPI numbers compiled at national level.

2.2 Multiple norms were adopted for selecting the items depending on their importance and suitability for pricing on a continuing basis. Accordingly, following four-fold criteria were adopted:

(i) to include all Public Distribution System (PDS) items;

(ii) to include all items accounting for 1% or more of total expenditure at sub-group level;

(iii) to include all items accounting for more than specified percentage of total expenditure of all consumption items:

Food, Housing & Miscellaneous items > 0.04%
Fuel items > 0.03%
Clothing items > 0.02%

(iv) to include all items for which more than 75% households have reported consumption.

2.3 Number of weighted items (having consumption share) varies among states/UTs and it is around 175 in the rural and about 200 in the urban areas. These items include services such as railway fare, airway fare, telephone charges, barber/beautician charges, washer man charges, tailoring charges etc. All India Weights are as under:

Group	CPI(Rural)	CPI(Urban)	CPI(Combined)
Food, beverages and tobacco	59.31	37.15	49.71
Fuel and light	10.42	8.40	9.49
Housing		22.53	9.77
Clothing and footwear	5.36	3.91	4.73
Miscellaneous	24.91	28.00	26.31
All Groups	100.00	100.00	100.00

3. NO OF ITEMS AND QUOTATIONS

3.1 CPI (Rural): From each district, two villages were selected. However, in case of some states with higher population but lesser number of districts, additional villages have been selected. There are in total 1181 villages. These villages have been distributed more or less equally among the four weeks to take in to account weekly variations in the prices. Number of items for price data collection identified through the market survey varies not only among states/UTs but also among the villages within the state/UT and it is around 225. Price data are collected from the selected shops in the villages every month by the Department of Posts.

3.2 CPI (Urban): All cities/towns having population (2001 Population Census) of more than 9 lakh and all state/UT capitals not covered therein were selected and other towns were selected randomly. Total number of selected towns across the country is 310. Allocation of price quotations and rented dwellings to the selected towns was done on the basis of 2001 population of the town as under:

Population of town	Number of quotations	Number of rented dwellings
Selection of towns on purposive basis		
More than 1 crore	24	144
25 lakh – 1 crore	12	72
9- 25 lakh	8	48
Remaining state/UT capitals	4	24
Selection of towns on random basis		
50000 – 9 lakh	4	24
Less than 50000	2	12

Total number of quotations is 1114 and these quotations represent different geographical areas of the town and also popularity among different segments of the population (poor, middle and affluent) living in the town. These quotations have been distributed more or less equally among the four weeks of the month to capture week to week variations. Number of items for price data collection identified through the market survey varies not only among states/UTs but also among the markets within the state/UT and it is around 250. Each selected market is visited every month for price data collection form shops/outlets.

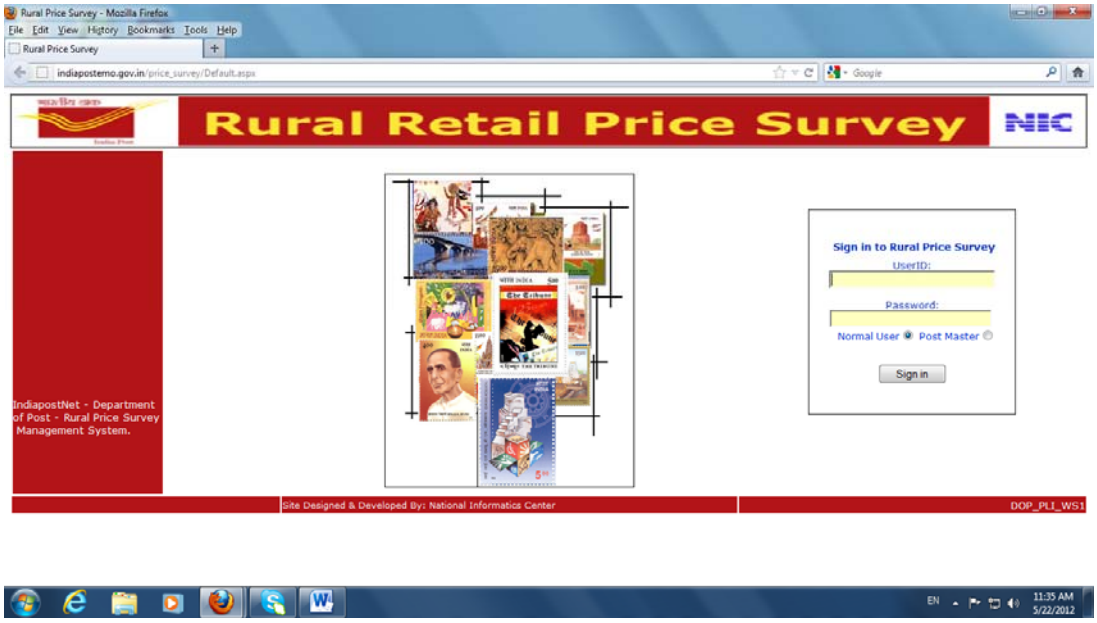
3.3 Specifications of items have been decided on the basis of their popularity. For unique identification of items, Structured Product Descriptions (SPDs) are followed.

3.4 As regards rent data collection, each of 6,684 sample rented dwellings is visited once in six months period (January—June, July- December) for canvassing the house rent schedule. Data collection in the urban areas is undertaken by the National Sample Survey Office.

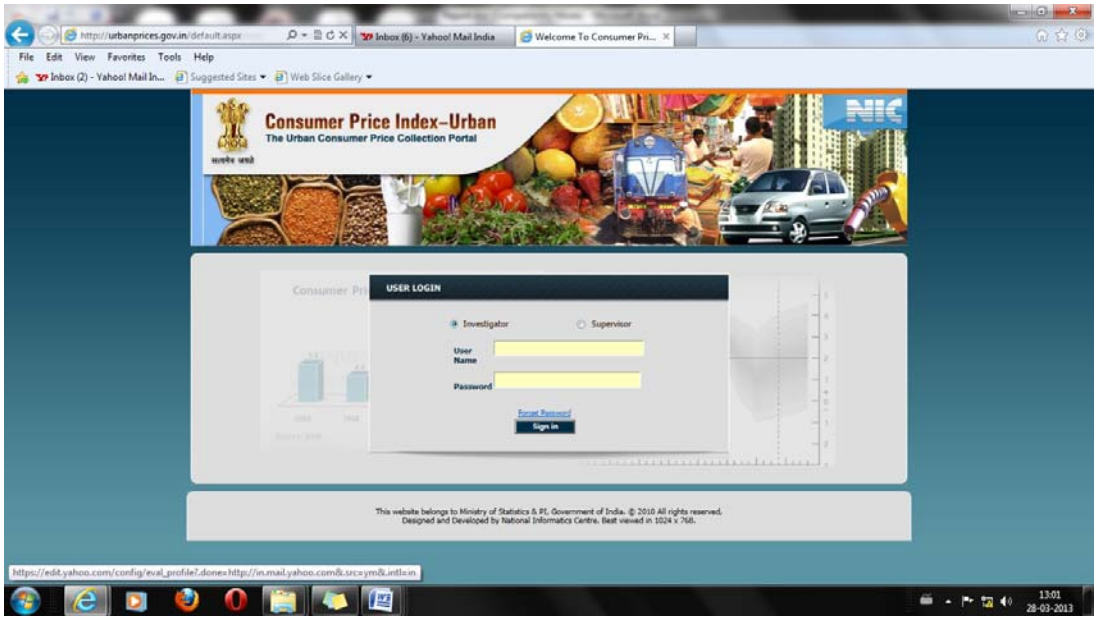
4. DATA COLLECTION PROCESS

4.1 There are about 550 thousand records of price data pertaining to rural and urban areas.

4.2 One unique feature of data collection for consumer price index mechanism is online transmission and verification of data. This is a completely paperless survey in the sense that no paper schedules are used for transmission of the data. Also the entire process of data validation is carried out using electronic mode of communication. Two independent web portals for Rural and Urban Price Data have been developed by the National Informatics Center (NIC). A snap shot of Rural Web Portal is

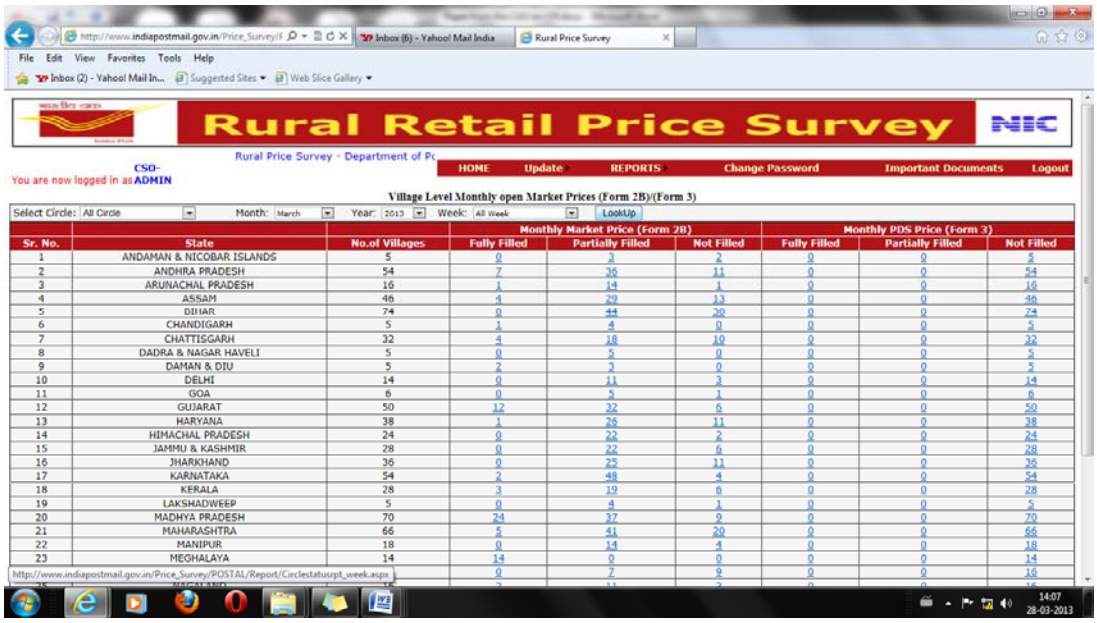


And that of Urban Web portal is

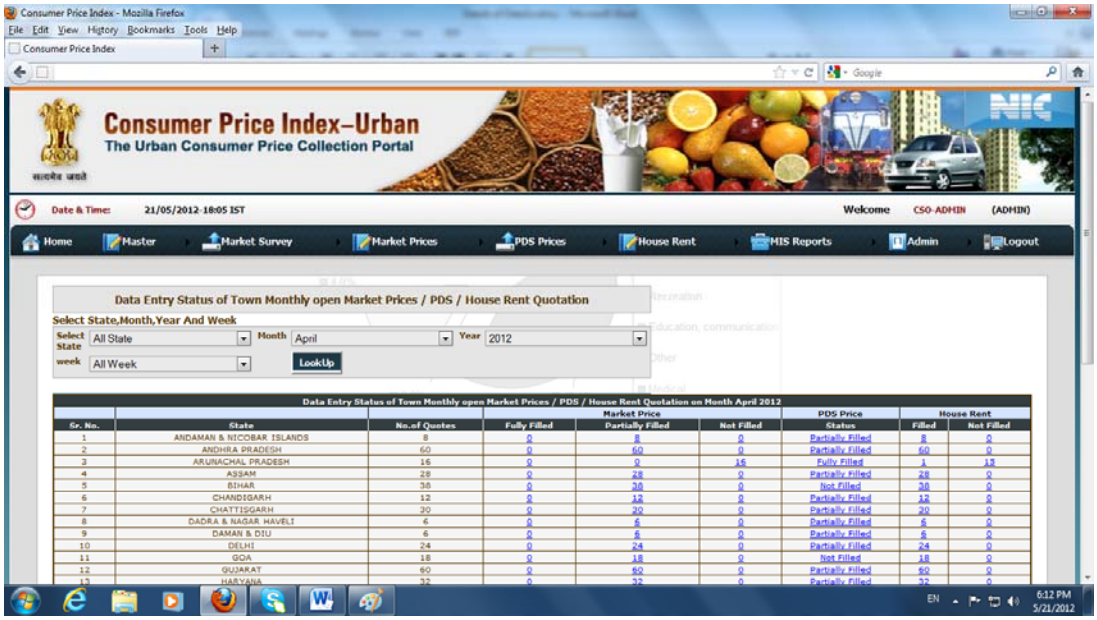


4.3 These web portals are exhaustive in their coverage and a host of activities are performed on this platform. Important among them are:

a) Checking of uploading status according to scheduled monthly programme of price survey.



Sr. No.	State	No.of Villages	Monthly Market Price (Form 2B) Fully Filled	Partially Filled	Not Filled	Monthly PDS Price (Form 3) Fully Filled	Partially Filled	Not Filled
1	ANDAMAN & NICOBAR ISLANDS	5	0	3	2	0	0	5
2	ANDHRA PRADESH	54	7	36	11	0	0	54
3	ARUNACHAL PRADESH	16	1	14	1	0	0	16
4	ASSAM	46	4	29	13	0	0	46
5	BIHAR	74	0	44	30	0	0	74
6	CHANDIGARH	5	1	4	0	0	0	5
7	CHATTISGARH	32	4	18	10	0	0	32
8	DADRA & NAGAR HAVELI	5	0	5	0	0	0	5
9	DAMAN & DIU	5	2	3	0	0	0	5
10	DELHI	14	0	11	3	0	0	14
11	GOA	6	0	5	1	0	0	6
12	GUJARAT	50	12	32	6	0	0	50
13	HARYANA	38	1	26	11	0	0	38
14	HIMACHAL PRADESH	24	0	22	2	0	0	24
15	JAMMU & KASHMIR	28	0	22	6	0	0	28
16	JHARKHAND	36	0	25	11	0	0	36
17	KARNATAKA	54	2	48	4	0	0	54
18	KERALA	28	3	19	6	0	0	28
19	LAKSHADWEEP	5	0	4	1	0	0	5
20	MADHYA PRADESH	70	24	37	9	0	0	70
21	MAHARASHTRA	66	5	41	20	0	0	66
22	MANIPUR	18	0	14	4	0	0	18
23	MEGHALAYA	14	14	0	0	0	0	14
			0	7	9	0	0	16

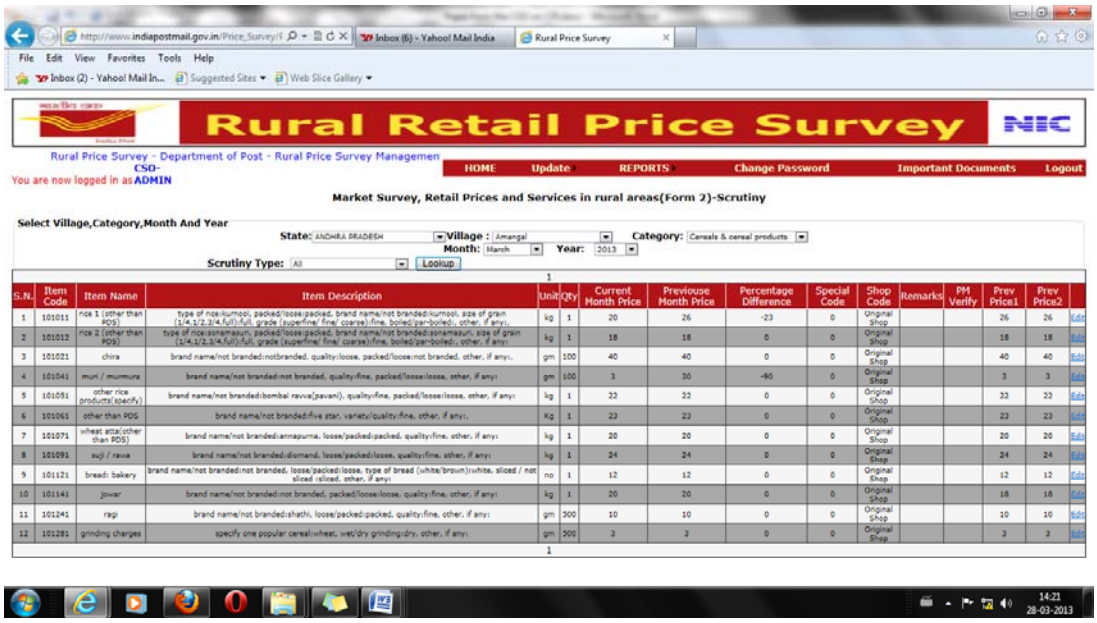


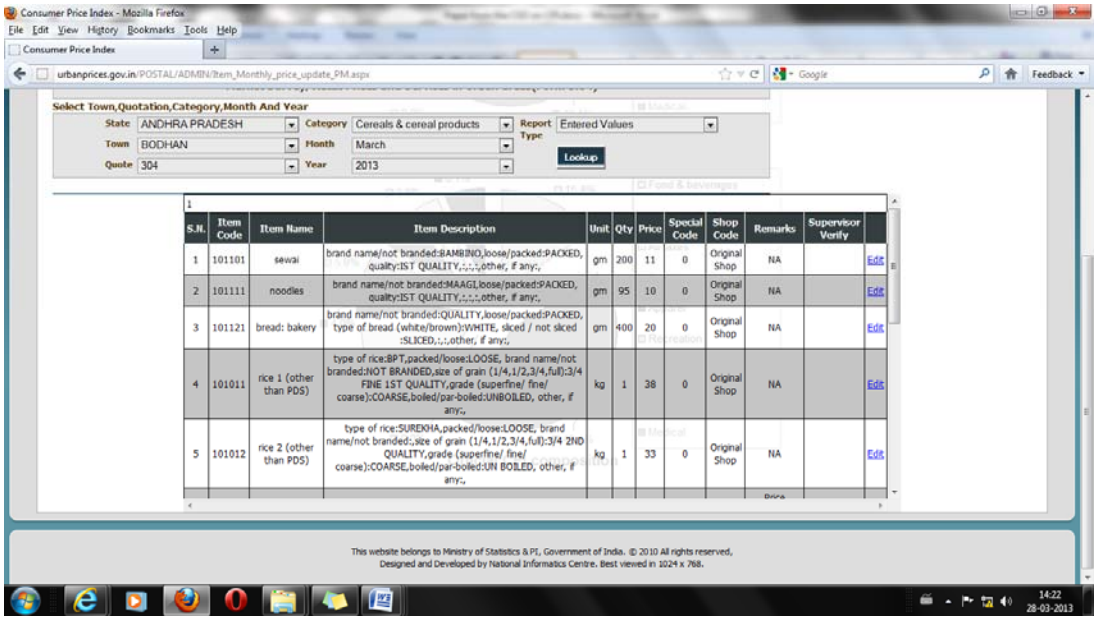
Data Entry Status of Town Monthly open Market Prices / PDS / House Rent Quotation on Month April 2012

Sr. No.	State	No.of Quotes	Market Price Fully Filled	Partially Filled	Not Filled	PDS Price Status	House Rent Filled	Not Filled
1	ANDAMAN & NICOBAR ISLANDS	8	0	8	0	Partially Filled	8	0
2	ANDHRA PRADESH	60	0	60	0	Partially Filled	60	0
3	ARUNACHAL PRADESH	16	0	0	16	Fully Filled	1	13
4	ASSAM	28	0	28	0	Partially Filled	28	0
5	BIHAR	38	0	38	0	Not Filled	38	0
6	CHANDIGARH	12	0	12	0	Partially Filled	12	0
7	CHATTISGARH	20	0	20	0	Partially Filled	20	0
8	DADRA & NAGAR HAVELI	6	0	6	0	Partially Filled	6	0
9	DAMAN & DIU	6	0	6	0	Partially Filled	6	0
10	DELHI	24	0	24	0	Partially Filled	24	0
11	GOA	18	0	18	0	Not Filled	18	0
12	GUJARAT	60	0	60	0	Partially Filled	60	0
13	HARYANA	32	0	32	0	Partially Filled	32	0

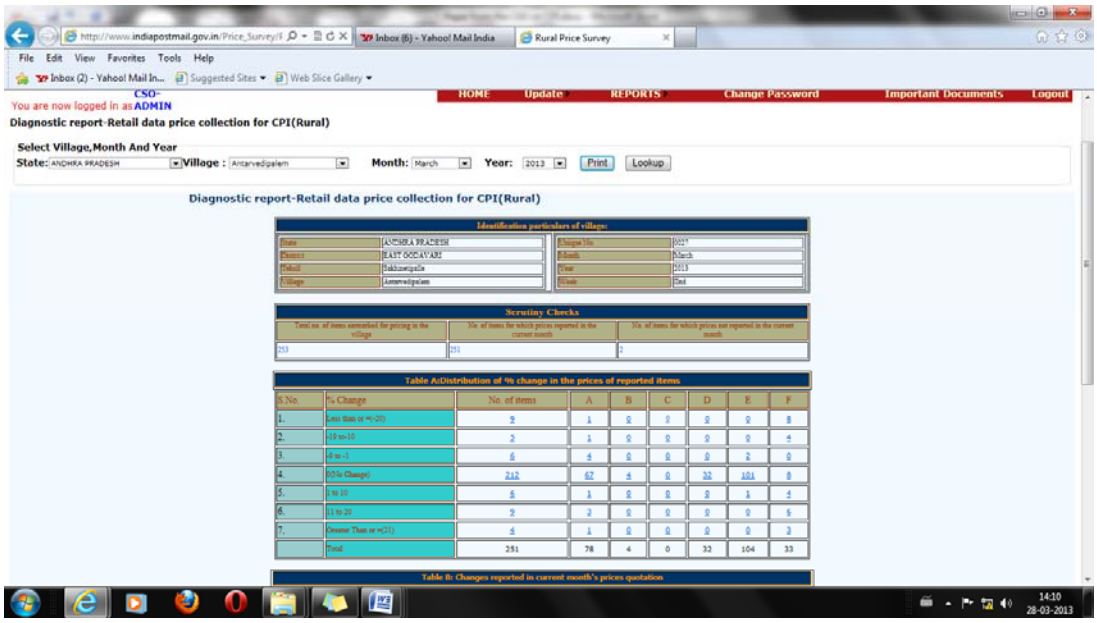
b) Data uploading and editing by the field offices of both Urban and Rural Price data collection. Urban web portal provides for data uploading of price as well as house rent data. Price data can be transmitted in two ways:

- Item by item direct entry on web portal.
- Offline entry of complete data set for a particular quotation/village through a data entry software to be uploaded on web portal in one go.





c) Online /real time scrutiny of uploaded data: Compilation of monthly price indices is an extremely short spanned activity and that is why it is utmost importance that data validation is done, to the extent possible, in real time. Online scrutiny ensures that responses of the data collectors are communicated in the minimum time. The first check is the coverage of items i.e. prices are reported for all the non-seasonal items earmarked for each village/quotation or not. Afterwards, scrutiny is done by the field supervisors based on the outliers indicated by the diagnostic tables available on the web portal. The diagnostic report primarily gives quotation/village wise grouping of price data according to the variation between prices of current month and previous month. Changes in the administratively controlled items such as petrol, diesel, LPG, Kerosene etc. are listed separately. The details of specification changes are also available in another table. Diagnostic table comes very handy in locating the inconsistencies and in ensuring that only consistent and accurate data are retained in the system. Snap shot of diagnostic tables are given below.



Subsequently, scrutiny is also done by the CSO using the diagnostic tables, month to month price verify module and other specific tools as soon as data are uploaded. Presently scrutiny, using online tools, is done on the basis of the following general rules:

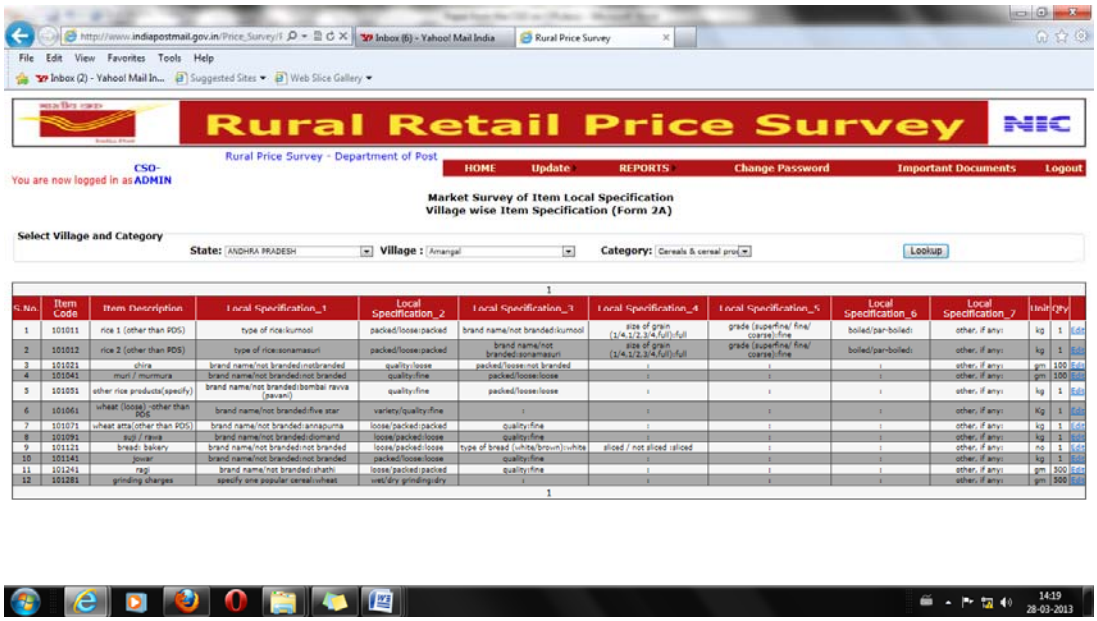
- Items (other than seasonal items) with very high variation in price as compared to previous month (generally 20% and more) are prima facie taken as inconsistent.
- Changes in Administrative items are checked and verified from the independent sources.
- No change in prices of items continuously for three months is considered questionable and checked with reference to prices of the neighbouring areas.
- Changes in specifications are checked for comparable prices.

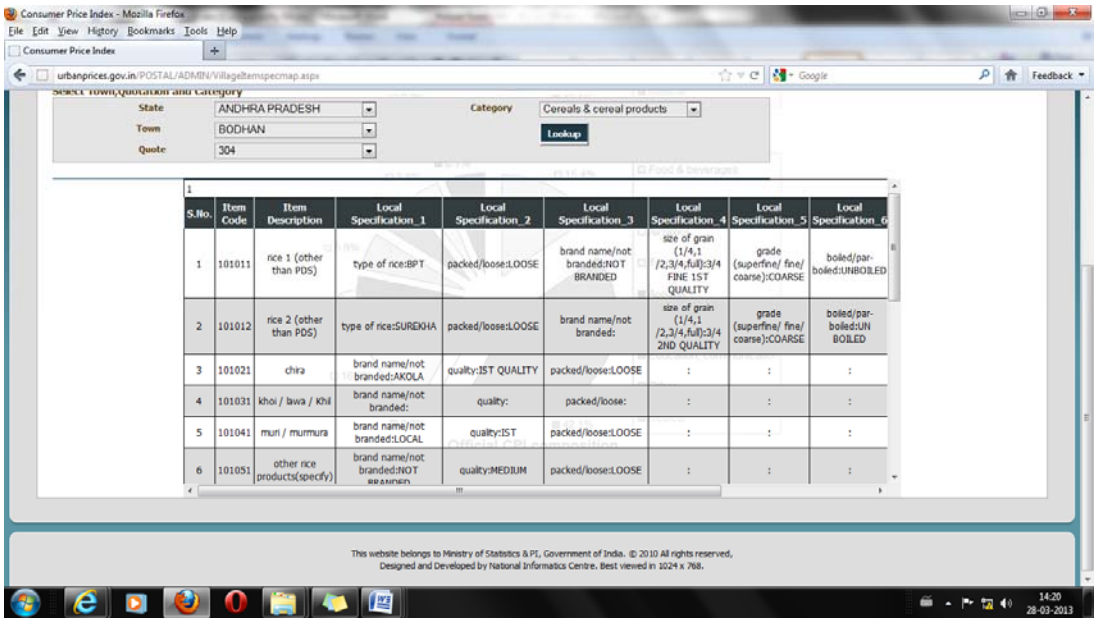
  Inconsistencies thus observed are communicated to concerned field offices of DOP and FOD and clarifications/ confirmations are sought and data are revised accordingly.

d) Offline Scrutiny at CSO: Offline scrutiny takes place at the last stage of data validation after the entire data for the month is downloaded from the portals. Instead of checking prices, now the checking is done of price relatives that are ratio of current price to its base price. Here a comprehensive validation of the data is done to ascertain that no outliers are left in the data files. Abnormal prices which cannot be explained by any means are dropped from the provisional index compilation and sent to the field for checking/examination. Extra care is taken to check variations/changes in the administratively controlled prices such as electricity, LPG, diesel, petrol, PDS prices etc. Data entry errors, if any, are corrected.

e) Scrutiny of House Rent data: Scrutiny of House Rent data involves checking of the following:

- Dwellings which were casualty for the month are dropped from calculation after reconfirming from the field.
- Checking current month rent w.r.t the rent six months ago, reasons for significant variation (10% or more), any change in the dwelling etc.





S.No.	Item Code	Item Description	Local Specification_1	Local Specification_2	Local Specification_3	Local Specification_4	Local Specification_5	Local Specification_6
1	101011	rice 1 (other than PDS)	type of rice:BPT	packed/loose:LOOSE	brand name/not branded:NOT BRANDED	size of grain (1/4,1 /2,3/4,full):3/4 FINE 1ST QUALITY	grade (superfine/ fine/ coarse):COARSE	boiled/par-boiled:UNBOILED
2	101012	rice 2 (other than PDS)	type of rice:SUREKHA	packed/loose:LOOSE	brand name/not branded:	size of grain (1/4,1 /2,3/4,full):3/4 2ND QUALITY	grade (superfine/ fine/ coarse):COARSE	boiled/par-boiled:UN BOILED
3	101021	chira	brand name/not branded:AKOLA	quality:1ST QUALITY	packed/loose:LOOSE	:	:	:
4	101031	khoi / lawa / Khil	brand name/not branded:	quality:	packed/loose:	:	:	:
5	101041	muri / murmura	brand name/not branded:LOCAL	quality:1ST	packed/loose:LOOSE	:	:	:
6	101051	other rice products(specify)	brand name/not branded:NOT BRANDED	quality:MEDIUM	packed/loose:LOOSE	:	:	:

f) Instructions and guidelines are issued by CSO from time to time on the basis of scrutiny observations.

5. COMPILATION OF INDICES

5.1 Compilation of CPI numbers for items other than house rent consists of two stages i.e. (i) calculation of price indices for elementary aggregates (item level indices) and (ii) the aggregation of these elementary price indices to higher level indices using the weights associated with each level. Laspeyre's formula is used for aggregation of indices. Specifications of items have been selected on the basis of popularity in the respective areas. These specifications are different in terms of units, quantity, quality etc. for different price schedules. Prices relative of each product specification (current month price/base year average price) is worked out. Average of these price relatives under the respective item multiplied with 100 gives the index for that item.

5.2 In case of seasonal items of vegetables and fruits, whenever prices of these items are not reported in a particular month, weights of such items are imputed on pro-rata basis to the items in the respective section (root vegetables, fresh vegetables, fresh fruits, and dry fruits).

5.3 House rent index is compiled by chain base method. Two categories of dwellings viz. rented dwellings and self-owned dwellings are considered in the compilation of the house rent index. The rental equivalence approach is adopted in respect of self- owned dwellings. For each State/UT, previous five months and current month data are used to compile rent relatives for the current month. Rent relative is calculated as current month rent/rent six months ago and then simple average relative is worked out by classifying the dwellings by number of living rooms (1 room, 2 rooms, 3 rooms and 4 or more rooms). These rent relatives are weighted to get a combined rent relative using the estimated proportions of dwellings under each group, obtained from the NSS 65th round survey (2008-09) on Housing Conditions. House rent index is obtained by multiplying the combined rent relative with the corresponding rent index six months ago.

5.4 For PDS items, price relatives are worked out separately for Above Poverty Line (APL) and Below Poverty Line (BPL) categories. These price relatives are combined with the respective share of expenditure as obtained from the Consumer Expenditure Survey (2004-05).

5.5 All India index at sub group level is compiled by taking the respective expenditure of the State/UT (average household expenditure X total estimated households) as weights. Rural and urban indices are also combined by taking expenditure as weight so as to get State/UT and national indices.