

## *Inflation Expectations Survey of Households: 2013-14\**

### **Introduction**

The Reserve Bank has been conducting Inflation Expectations Survey of Households (IESH) on a quarterly basis, since September 2005. The survey elicits qualitative and quantitative responses on expected price changes and inflation for three-month ahead and one-year ahead period. Inflation expectations of households are subjective assessments and are based on their individual consumption baskets and therefore, may be different from the official inflation numbers released periodically by the government. These inflation expectations should not be treated as forecast of any official measure of inflation, though they may provide useful inputs on directional movements of future inflation.

The quarterly survey results of IESH are released along with quarterly macroeconomic and monetary development review on RBI website. The article presents analysis of survey results for longer-time, especially for last four (32<sup>nd</sup> to 35<sup>th</sup>) rounds of survey.

### **2. Sample Coverage and Information Sought**

Till September 2012 (29<sup>th</sup> round), the survey has been conducted in 12 cities. The major metropolitan cities, *viz.*, Delhi, Kolkata, Mumbai and Chennai are represented by 500 households each, while another eight cities, *viz.*, Jaipur, Lucknow, Bhopal, Ahmedabad, Patna, Guwahati, Bengaluru and Hyderabad are represented by 250 households each. From round 30, (quarter ended December 2012) four more cities have been added *viz.*, Kolhapur, Nagpur, Thiruvananthapuram and Bhubaneswar. A sample of 250 households is selected from each of these cities so as to achieve a total sample size of 5,000 from 16

cities. The respondents having a view on perceived current inflation are well spread across the cities to provide a good geographical coverage, ensuring adequate representation of gender and occupation.

The survey schedule is organised into seven blocks covering the respondent profile (block 1), general and product-wise price expectations (block 2 and 3), feedback on RBI's action to control inflation (block 4), current and expected inflation rate (block 5), amount paid for purchase of major food items during last one month (block 6) and expectations on changes in income/wages (block 7). The survey questionnaire was rationalized for focused response and the rationalized questionnaire is introduced from 35<sup>th</sup> round (Q4: 2013-14).

In this survey, the response options for price changes are (i) price increase more than current rate, (ii) price increase similar to current rate, (iii) price increase less than current rate, (iv) no change in prices and (v) decline in prices. The quantitative response on inflation rates are collected in intervals - the lowest being 'less than 1 per cent' and the highest being '16 per cent and above' with 100 basis points size for all intermediate classes.

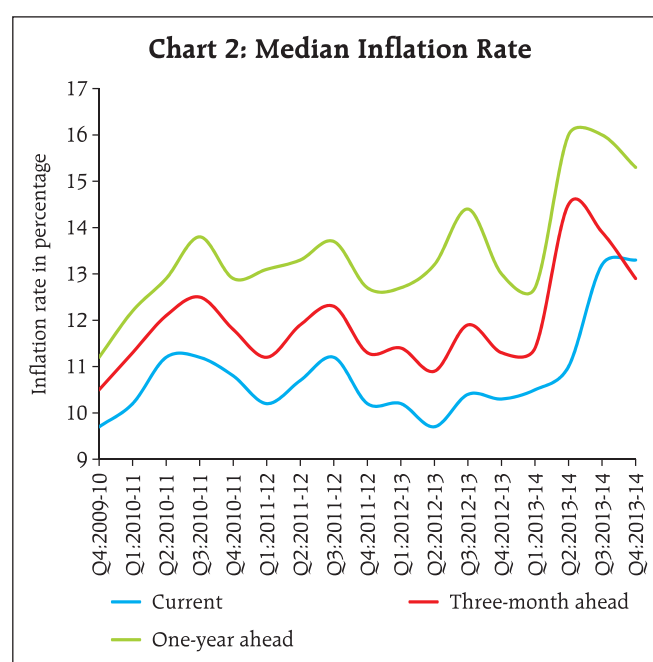
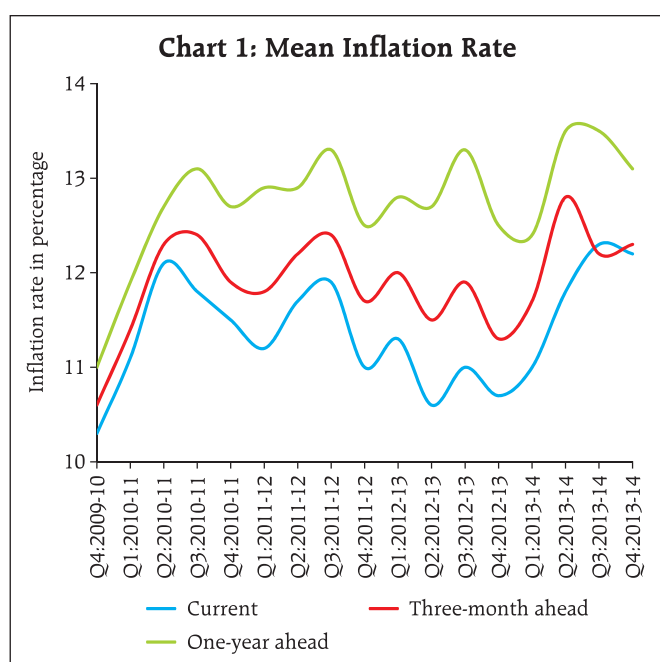
From the second quarter of the financial year 2013-14, instead of Paper and Pencil Personal Interviewing (PAPI) technique, Computer-Assisted Personal Interviewing (CAPI) process is used. Under CAPI, survey data are collected by an in-person interviewer *i.e.*, (face-to-face interviewing), who uses a Tablet /computer to administer the questionnaire to the respondent and captures the answers onto the Tablet /computer. Introducing CAPI reduces the time lag between data collection and data analysis. Also, CAPI is eco-friendly as it saves papers.

### **3. Survey Results**

#### **3.1. Respondents' Current Inflation Perceptions *vis-à-vis* Expectations**

During the year 2013-14, the median inflation perceptions show increasing trend over quarters up to the present survey (March, 2014 round), however

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both the expectations for next three-month as well as for next one-year declined in Q4:2013-14 (Table 2). The percentages of the respondents, perceiving current inflation and expecting future inflation in double digits, increased over the quarters and reached maximum in Q3:2013-14 (December, 2013 round) before declining marginally in Q4:2013-14 (Table 1). The mean inflation rates were observed to be range-bound during recent years. Also, it can be observed that inflation expectations move closely in tandem with the current inflation perceptions (Chart 1 & 2). The time series movements of inflation expectations show that future expectations are comparatively higher than current perceptions. For the first time in the survey history, near term median inflation (*i.e.* three-month ahead) expectation is lower than the median current inflation perception in Q4:2013-14.

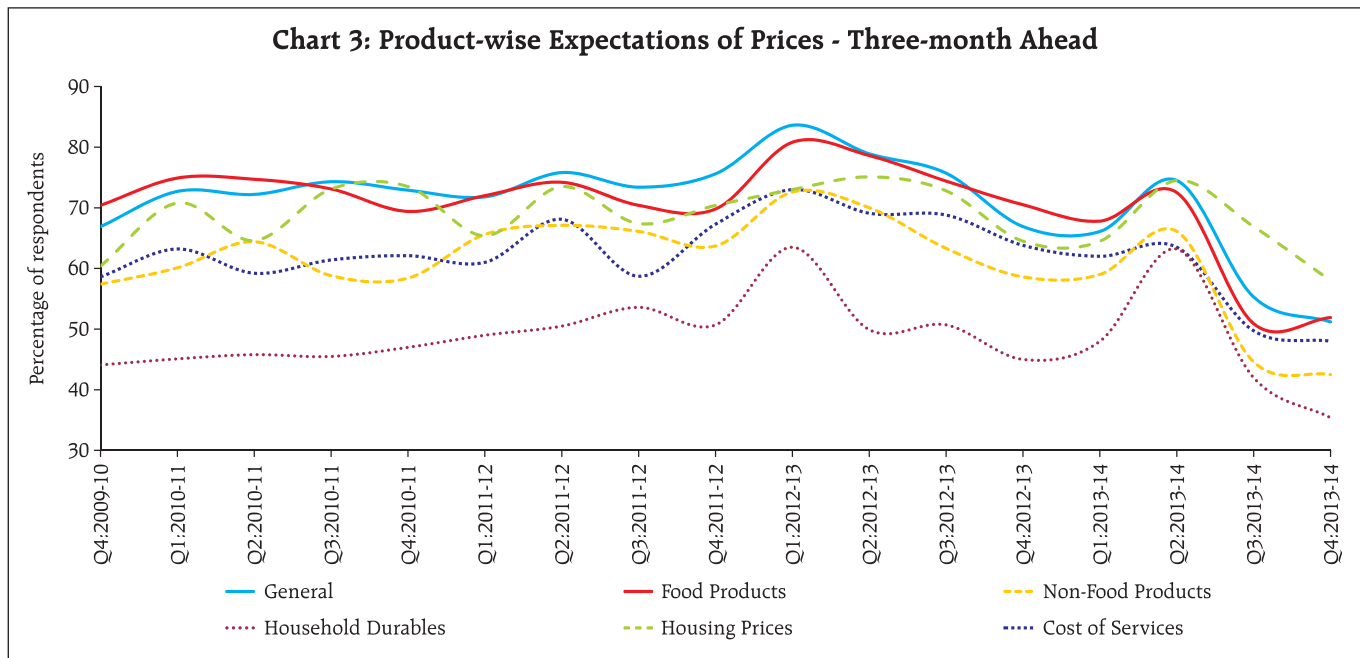
### 3.2. Movements of General Price Expectations for Three-month Ahead and One-year Ahead

The percentage of respondents expecting increase in 'general prices' for both three-month ahead and one-year ahead periods, sharply decreased in Q2:2013-14; the said percentage for three month

ahead period decreased further during Q3:2013-14 and the percentage marginally increased in Q4:2013-14 for both three-month and one-year ahead periods. The percentage of respondents expecting general prices 'increase by more than current rate' decreased from 74.5 per cent (the highest position during the year in Q2: 2013-14) to 51.2 per cent (the lowest position during the year in Q4:2013-14) for three-month ahead period and 76.6 per cent (the highest position during the year in Q2: 2013-14) to 59 per cent (the lowest position during the year in Q4:2013-14) for one-year ahead period.

The cross-tabulation of general price expectation for three-months ahead and one-year ahead for the last four rounds are given in Table 3.1 to Table 3.4. Out of the respondents expecting price increase by more than current rate for three-month ahead period, majority expected the same for one-year ahead period for last four quarters (Quarters: Q1:2013-14 to Q4:2013-14).

Product group-wise price expectations show that the general price expectations are relatively more aligned with food price expectations than with other

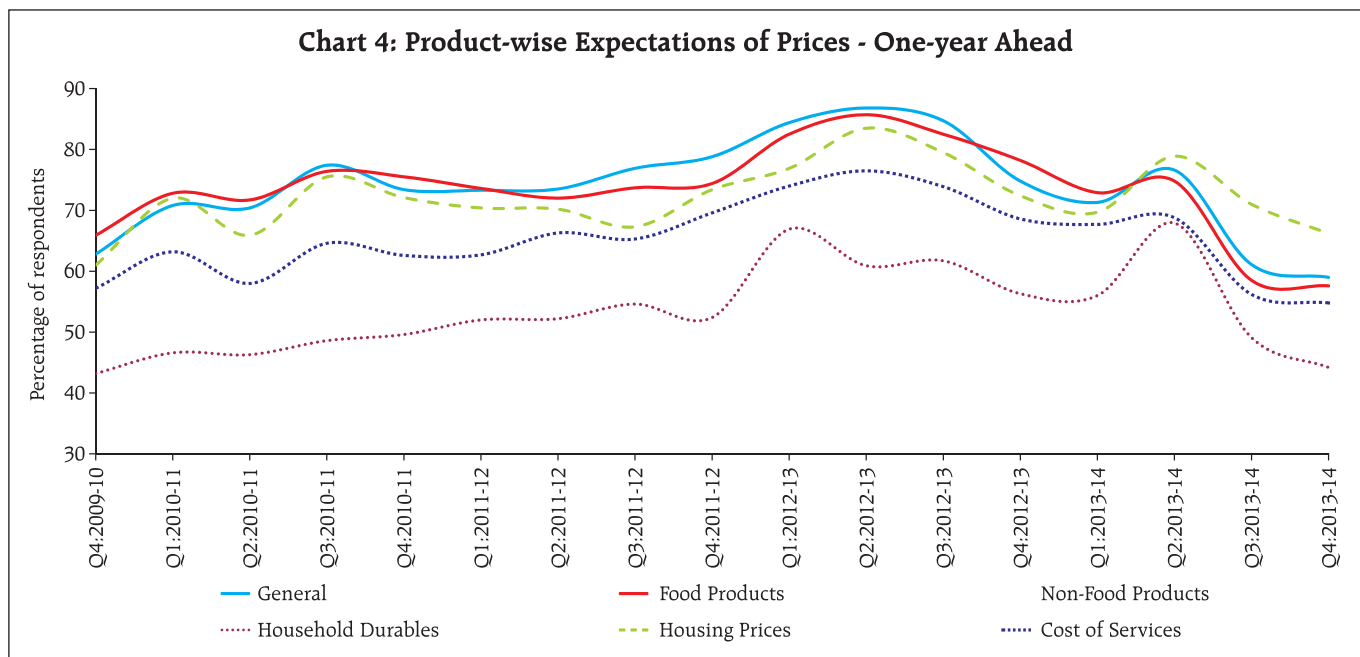


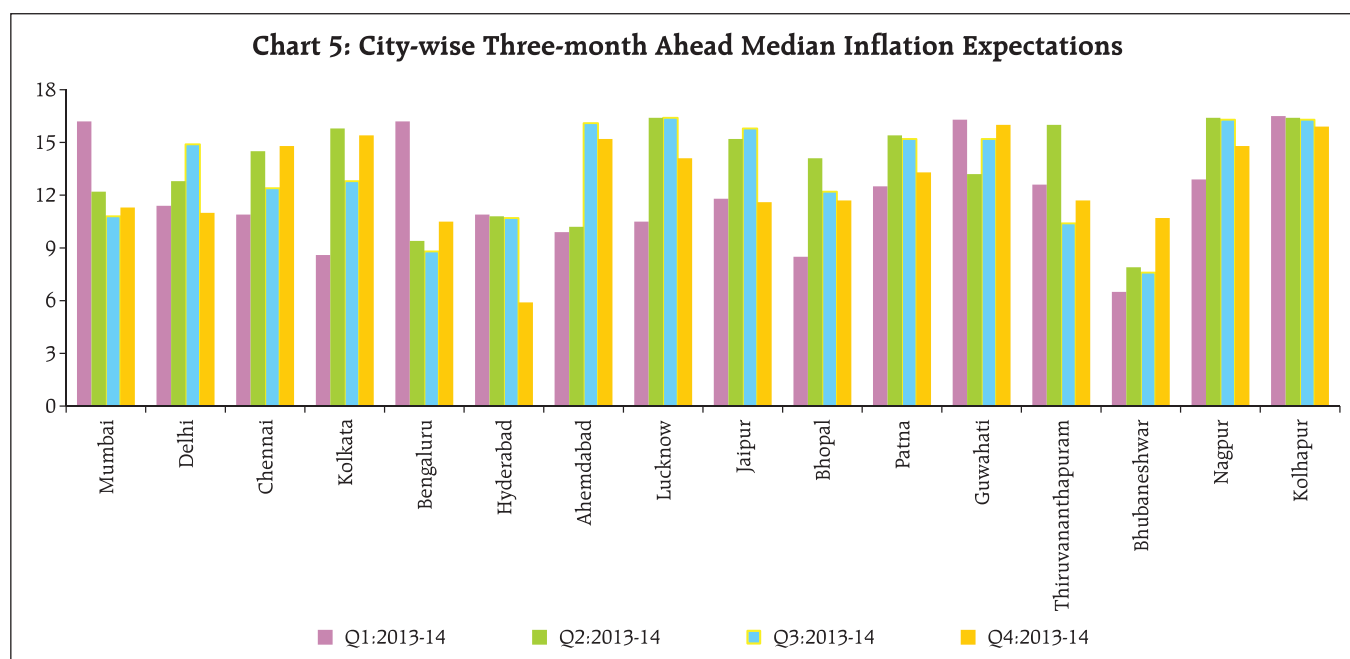
product groups. The trend is similar for both three-month ahead as well as one-year ahead expectations (Chart 3 & 4).

### 3.3. Identification of Major Source of Variation

An analysis of variance (ANOVA) over different rounds (Table 4) revealed that 'City' has always been a significant source of variation for inflation perceptions

for current period and future expectations in each round. Other significant source of variation was 'Occupation category' in Q1: 2013-14 and Q4: 2013-14 for current inflation perceptions and for inflation expectations in Q3: 2013-14 and Q4: 2013-14. 'Age-group' was significant source of variation for current inflation perceptions in all quarters (except Q1: 2013-14) and for three-month ahead inflation expectations





in Q2: 2013-14. 'Gender' was also significant source of variation for current inflation perception in Q3: 2013-14 and for inflation rates in Q4: 2013-14.

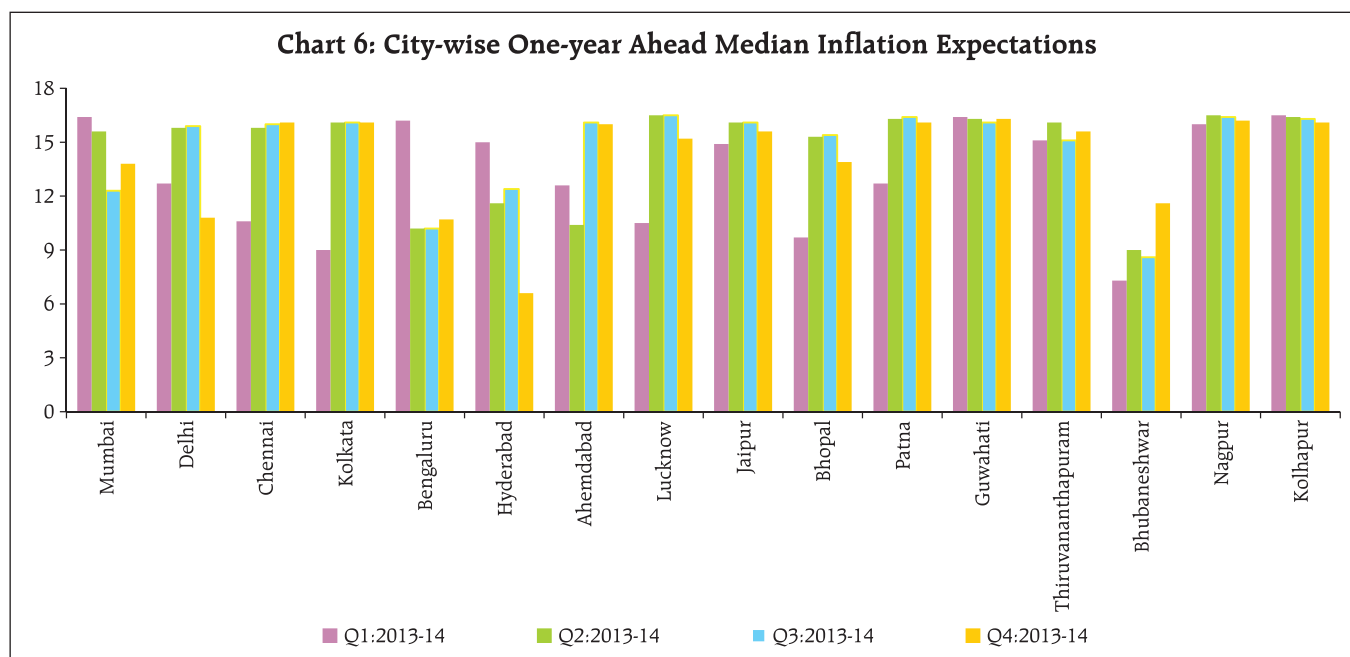
**3.4. City-wise Household Inflation Expectations**

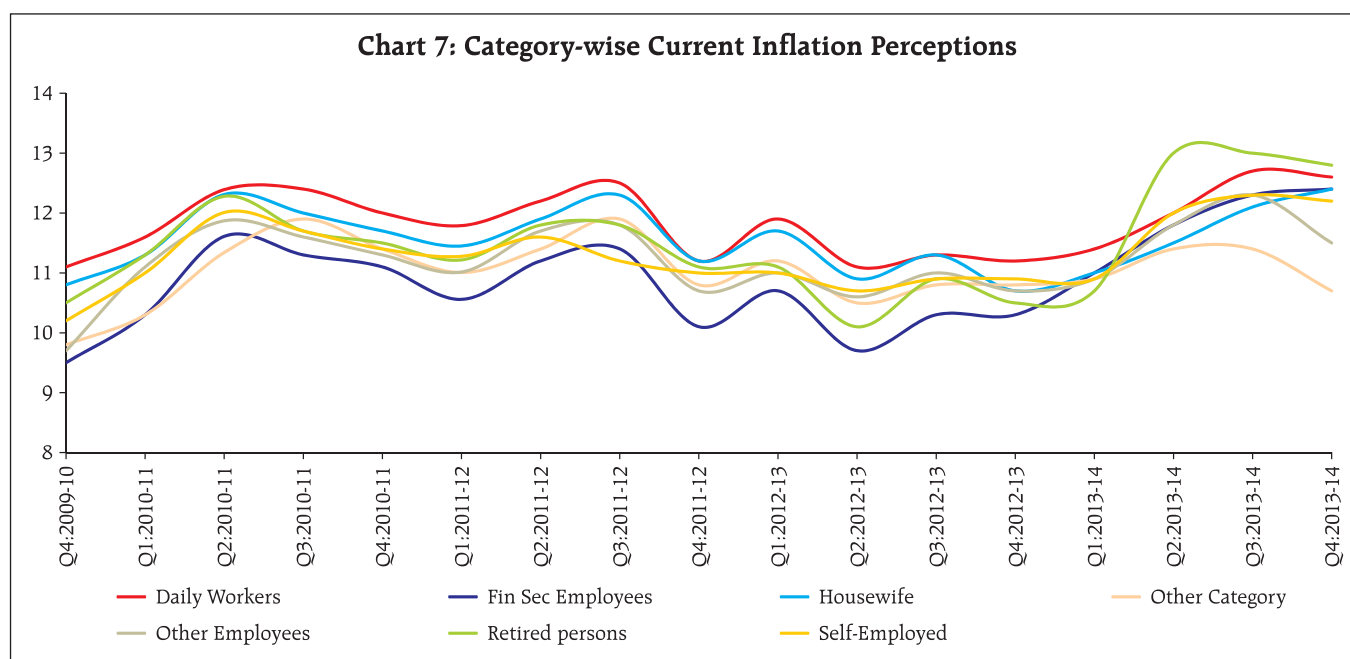
There are significant variations in inflation expectations across cities (Chart 5 and 6). The respondents from Bhubaneswar expect relatively

lower inflation in all quarters except in Q4:2013-14. Kolhapur respondents show relatively higher inflation expectations in all four quarters (Table 5).

**3.5. Occupation-wise Inflation Perceptions**

Respondents of various occupation categories show similar trend over quarters (Chart 7). Generally, Retired person and Daily workers reported the higher





inflation rates whereas other category respondents reported relatively lower inflation rates in last four quarters.

### 3.6. Bootstrap Confidence Interval for Estimates of Inflation Rates

Drawing 10,000 re-samples using Simple Random Sampling with Replacement (SRSWR), the 99 per cent bootstrap confidence intervals for mean inflation rates are given in Table 6. The width of confidence intervals varied between 27 to 38 basis points. It is observed that the exercise leads to a confidence interval with small width indicating that the point estimates are quite precise and stable.

### 3.7. Inter-consistency Between Response to Qualitative and Quantitative Questions

The survey collects both qualitative and quantitative responses on expected price changes and inflation. To check the inter consistency between qualitative and quantitative responses, a cross table of qualitative and quantitative responses has been worked out and results are presented in Table 7. It is observed that the three-month ahead mean and

median inflation expectations for those respondents who expected general price 'increase more than current rate' in next three-month, was observed to be higher than their mean current inflation perceptions. The three-month ahead mean inflation expectations for those respondents who expected general price 'increase less than current rate' was found to be less than current inflation perceptions (except in Q2:2013-14). The difference between three-month ahead mean inflation expectations and current inflation has been very low for respondents who expected general price 'increase similar to current rate' in next three months. Similar observations can be drawn regarding one-year ahead period also. Thus, fairly consistent responses between qualitative and quantitative questions are observed in the survey.

## 4. Conclusions

Double digit inflation expectations persisted throughout the year; however, it declined marginally in Q4:2013-14. The inflation perception and expectations varied across various cities covered in the survey.

## Annex-Data Tables

Inflation Rate	Current Inflation Rates				Inflation Expectations Three-month Ahead				Inflation Expectations One-year Ahead			
	Q1: 2013-14	Q2: 2013-14	Q3: 2013-14	Q4: 2013-14	Q1: 2013-14	Q2: 2013-14	Q3: 2013-14	Q4: 2013-14	Q1: 2013-14	Q2: 2013-14	Q3: 2013-14	Q4: 2013-14
<1	0.1	0.0	0.3	0.6	0.2	0.0	1.3	0.9	1.5	0.5	0.7	1.0
1-2	0.2	0.8	0.8	0.8	0.1	0.2	1.3	0.9	0.1	0.8	0.7	1.1
2-3	0.7	1.9	1.3	1.5	0.4	1.1	2.2	1.6	0.2	0.5	0.5	0.9
3-4	1.1	1.2	1.4	1.4	0.7	1.7	1.9	1.6	0.4	0.9	0.8	1.0
4-5	2.7	3.7	3.8	3.7	1.7	2.1	3.4	2.8	0.7	1.6	1.4	2.3
5-6	5.3	5.3	4.7	4.1	3.3	3.1	5.5	2.2	2.2	2.5	2.3	3.4
6-7	7.1	3.2	2.4	2.4	5.9	2.3	2.6	2.5	5.2	2.8	1.9	3.0
7-8	6.8	4.3	2.8	2.0	4.3	3.1	3.4	2.5	4.2	3.0	2.3	1.9
8-9	10.4	3.4	3.5	2.1	6.0	3.1	3.6	2.0	4.7	3.2	3.2	2.2
9-10	10.0	9.3	8.8	12.1	12.4	6.5	5.3	8.2	7.0	4.6	6.3	6.8
10-11	11.3	17.0	15.7	14.2	11.1	13.3	9.0	12.1	10.5	7.3	8.6	8.1
11-12	7.5	2.9	2.2	2.9	9.8	3.8	4.0	8.0	7.6	4.8	3.9	5.0
12-13	6.6	2.5	2.1	1.8	8.1	4.8	4.2	5.1	8.7	3.0	3.1	2.1
13-14	3.1	1.0	0.9	1.2	5.7	2.4	2.5	2.8	5.5	1.9	1.7	2.3
14-15	2.7	4.4	3.5	8.3	3.3	5.1	4.0	10.0	5.1	3.6	4.2	6.6
15-16	2.1	7.4	6.4	10.1	3.3	8.8	7.5	7.9	6.7	7.7	7.0	8.6
>=16	22.2	31.7	39.3	30.8	23.7	38.5	38.2	29.0	29.7	51.3	51.4	43.9
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Survey Round	Survey Quarter ended	Current		Expectations			
				Three-month Ahead		One-year Ahead	
		Mean	Median	Mean	Median	Mean	Median
27	Q4:2011-12	11.0	10.2	11.7	11.3	12.5	12.7
28	Q1:2012-13	11.3	10.2	12.0	11.4	12.8	12.7
29	Q2:2012-13	10.6	9.7	11.5	10.9	12.7	13.2
30	Q3:2012-13	11.0	10.4	11.9	11.9	13.3	14.4
31	Q4:2012-13	10.7	10.3	11.3	11.3	12.5	13.0
32	Q1:2013-14	11.0	10.5	11.7	11.4	12.4	12.7
33	Q2:2013-14	11.8	11.0	12.8	14.5	13.5	16.0
34	Q3:2013-14	12.3	13.2	12.2	13.9	13.5	16.0
35	Q4:2013-14	12.2	13.3	12.3	12.9	13.1	15.3

**Table 3.1. Cross-tabulation of General Price Expectations for Three -month Ahead and One-year Ahead (Q1:2013-14 : Round 32)**

General price expectations One-year Ahead	General price expectations Three-month Ahead					
	Price increase more than current rate	Price increase similar to current rate	Price increase less than current rate	No change in price	Decline in price	Total
Price increase more than current rate	57.4	11.3	2.1	0.4	0.0	71.3
Price increase similar to current rate	4.7	12.8	1.0	0.2	0.0	18.7
Price increase less than current rate	2.7	1.3	4.2	0.1	0.0	8.3
No change in price	1.3	0.2	0.1	0.1	0.0	1.7
Decline in price	0.0	0.0	0.0	0.0	0.0	0.1
<b>Total</b>	<b>66.1</b>	<b>25.6</b>	<b>7.5</b>	<b>0.8</b>	<b>0.1</b>	<b>100.0</b>

**Table 3.2. Cross-tabulation of General Price Expectations for Three -month Ahead and One-year Ahead (Q2:2013-14 : Round 33)**

General price expectations One-year Ahead	General price expectations Three-month Ahead					
	Price increase more than current rate	Price increase similar to current rate	Price increase less than current rate	No change in price	Decline in price	Total
Price increase more than current rate	65.3	4.6	0.6	4.3	1.8	76.6
Price increase similar to current rate	5.2	5.5	0.3	1.5	0.5	13.0
Price increase less than current rate	1.1	0.3	0.4	0.4	0.8	2.9
No change in price	2.0	0.7	0.1	1.2	0.6	4.6
Decline in price	1.0	0.2	0.1	0.4	1.2	2.9
<b>Total</b>	<b>74.5</b>	<b>11.3</b>	<b>1.5</b>	<b>7.8</b>	<b>4.9</b>	<b>100.0</b>

**Table 3.3. Cross-tabulation of General Price Expectations for Three -month Ahead and One-year Ahead (Q3:2013-14 : Round 34)**

General price expectations One-year Ahead	General price expectations Three-month Ahead					
	Price increase more than current rate	Price increase similar to current rate	Price increase less than current rate	No change in price	Decline in price	Total
Price increase more than current rate	46.0	9.5	2.0	2.3	1.3	61.1
Price increase similar to current rate	5.9	12.1	2.1	4.3	0.7	25.1
Price increase less than current rate	1.0	1.4	2.7	1.2	0.3	6.5
No change in price	1.4	0.8	0.4	1.0	0.3	4.0
Decline in price	1.0	0.3	0.2	0.6	1.2	3.3
<b>Total</b>	<b>55.3</b>	<b>24.0</b>	<b>7.5</b>	<b>9.5</b>	<b>3.7</b>	<b>100.0</b>



**Table 3.4: Cross-tabulation of General Price Expectations for Three -month Ahead and One-year Ahead (Q4:2013-14 : Round 35)**

General price expectations One-year Ahead	General price expectations Three-month Ahead						Total
		Price increase more than current rate	Price increase similar to current rate	Price increase less than current rate	No change in price	Decline in price	
Price increase more than current rate		42.9	9.6	2.4	3.1	1.0	59.0
Price increase similar to current rate		5.3	15.8	2.0	2.2	0.4	25.7
Price increase less than current rate		1.4	1.6	4.6	1.4	0.3	9.3
No change in price		1.0	0.8	0.4	1.1	0.1	3.5
Decline in price		0.6	0.5	0.3	0.5	0.7	2.4
<b>Total</b>		51.2	28.4	9.6	8.3	2.5	100.0

**Table 4: ANOVA Results: Factors that Explain the Total Variability**

Survey Round	Survey Quarter	Current	Three-month Ahead	One-year Ahead
27	Q4:2011-12	City, Gender, Category	City, Gender, Category	City, Gender, Category
28	Q1:2012-13	City, Category	City, Category	City, Gender, Category
29	Q2:2012-13	City, Gender	City, Gender, Category	City, Category
30	Q3:2012-13	City, Age, Category	City, Category	City, Category, Age
31	Q4:2012-13	City, Category	City, Category	City, Category, Age
32	Q1:2013-14	City, Category	City	City
33	Q2:2013-14	City, Age	City, Age	City
34	Q3:2013-14	City, Gender, Age	City, Category	City, Category
35	Q4:2013-14	City, Category, Gender, Age	City, Category, Gender	City, Category, Gender



**Table 5: Median Inflation Perceptions and Expectations**

	Current				Three-month Ahead				One-year Ahead			
	Q1: 2013-14	Q2: 2013-14	Q3: 2013-14	Q4: 2013-14	Q1: 2013-14	Q2: 2013-14	Q3: 2013-14	Q4: 2013-14	Q1 : 2013-14	Q2: 2013-14	Q3: 2013-14	Q4: 2013-14
Mumbai	16.1	11.7	11.0	11.4	16.2	12.2	10.8	11.3	16.4	15.6	12.3	13.8
Delhi	10.6	10.7	12.7	10.2	11.4	12.8	14.9	11.0	12.7	15.8	15.9	10.8
Chennai	10.0	10.4	10.5	15.3	10.9	14.5	12.4	14.8	10.6	15.8	16.0	16.1
Kolkata	7.1	10.9	16.1	15.1	8.6	15.8	12.8	15.4	9.0	16.1	16.1	16.1
Bengaluru	16.2	8.6	8.3	10.8	16.2	9.4	8.8	10.5	16.2	10.2	10.2	10.7
Hyderabad	10.4	10.5	9.9	5.4	10.9	10.8	10.7	5.9	15.0	11.6	12.4	6.6
Ahmadabad	8.7	9.4	15.1	15.3	9.9	10.2	16.1	15.2	12.6	10.4	16.1	16.0
Lucknow	10.4	16.2	16.4	14.5	10.5	16.4	16.4	14.1	10.5	16.5	16.5	15.2
Jaipur	11.5	14.9	15.9	15.4	11.8	15.2	15.8	11.6	14.9	16.1	16.1	15.6
Bhopal	7.8	10.2	10.5	9.7	8.5	14.1	12.2	11.7	9.7	15.3	15.4	13.9
Patna	12.5	15.6	12.0	12.0	12.5	15.4	15.2	13.3	12.7	16.3	16.4	16.1
Guwahati	16.3	12.9	15.4	13.6	16.3	13.2	15.2	16.0	16.4	16.3	16.1	16.3
Thiruvananthapuram	11.2	14.0	13.9	14.3	12.6	16.0	10.4	11.7	15.1	16.1	15.1	15.6
Bhubaneswar	5.7	6.7	6.4	10.2	6.5	7.9	7.6	10.7	7.3	9.0	8.6	11.6
Nagpur	10.7	16.3	16.4	15.7	12.9	16.4	16.3	14.8	16.0	16.5	16.4	16.2
Kolhapur	16.5	16.4	16.2	15.2	16.5	16.4	16.3	15.9	16.5	16.4	16.3	16.1

**Table 6: 99% Bootstrap Confidence Intervals (BCI) Based on 10,000 Resamples**

Survey Round	Survey Quarter	Current		Three-month Ahead		One-year Ahead	
		99% BCI for Mean	Interval width	99% BCI for Mean	Interval width	99% BCI for Mean	Interval width
32	Q1:2013-14	(10.82, 11.11)	0.29	(11.53, 11.80)	0.27	(12.23, 12.52)	0.29
33	Q2:2013-14	(11.67, 12.00)	0.33	(12.68, 12.99)	0.31	(13.36, 13.68)	0.32
34	Q3:2013-14	(12.14, 12.47)	0.33	(11.98, 12.36)	0.38	(13.39, 13.71)	0.32
35	Q4:2013-14	(12.03, 12.36)	0.33	(12.14, 12.47)	0.33	(12.89, 13.23)	0.34

**Table 7: Mean Inflation Perceptions of Respondents Who Thought General Price will Increase in Next Three-month and in Next One-year**

Survey Quarter	General price expectation	Three-month Ahead				One-year Ahead			
		Inflation Rates				Inflation Rates			
		Current		Three-month Ahead		Current		Three-month Ahead	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median
Q1: 2013-14	Price increase more than current rate	10.9	10.2	12.1	11.7	10.9	10.3	13.2	14.1
	Price increase similar to current rate	10.6	10.7	10.7	10.7	10.7	10.8	10.8	10.9
	Price increase less than current rate	13.0	16.1	12.0	14.3	12.1	12.4	11.1	10.7
Q2: 2013-14	Price increase more than current rate	12.0	11.6	13.0	15.0	11.9	11.2	14.2	16.1
	Price increase similar to current rate	11.4	10.5	12.5	12.5	12.1	11.3	12.3	12.3
	Price increase less than current rate	11.7	10.9	12.6	13.2	14.6	16.2	14.3	16.2
Q3: 2013-14	Price increase more than current rate	12.0	11.5	12.6	14.9	12.0	11.5	14.5	16.2
	Price increase similar to current rate	13.1	15.2	12.5	14.5	12.9	14.5	12.7	14.2
	Price increase less than current rate	12.7	15.2	11.3	11.6	12.4	14.9	10.2	9.7
Q4: 2013-14	Price increase more than current rate	12.1	12.3	12.9	14.5	12.2	12.7	14.4	16.2
	Price increase similar to current rate	12.3	14.1	11.7	11.2	12.1	14.1	11.9	12.2
	Price increase less than current rate	12.7	14.8	12.3	13.7	12.7	14.7	11.4	12.0