

# *Inflation Expectations Survey of Households: 2015-16\**

## 1 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 from the households, on expected price changes and inflation for three-month and one-year ahead. As the household inflation expectations are subjective assessments based on individual's consumption basket, it is not comparable with official measure of inflation, periodically released by the Government. However, it provides useful directional information on near-term inflationary pressures and also supplements other economic indicators. The quarterly survey results of IESH are regularly published on RBI website and this article presents an analysis over a longer horizon covering the last four rounds (40<sup>th</sup> to 43<sup>rd</sup> round) of survey.

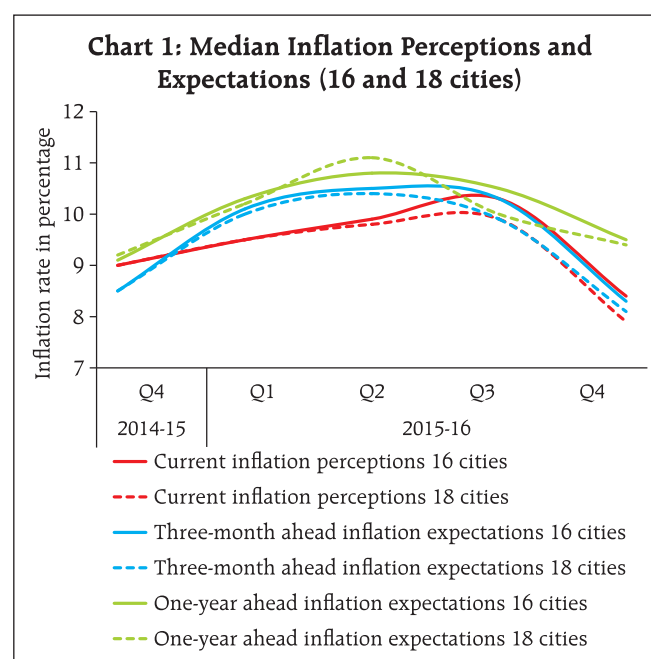
## 2 Survey Schedule and Sample Coverage

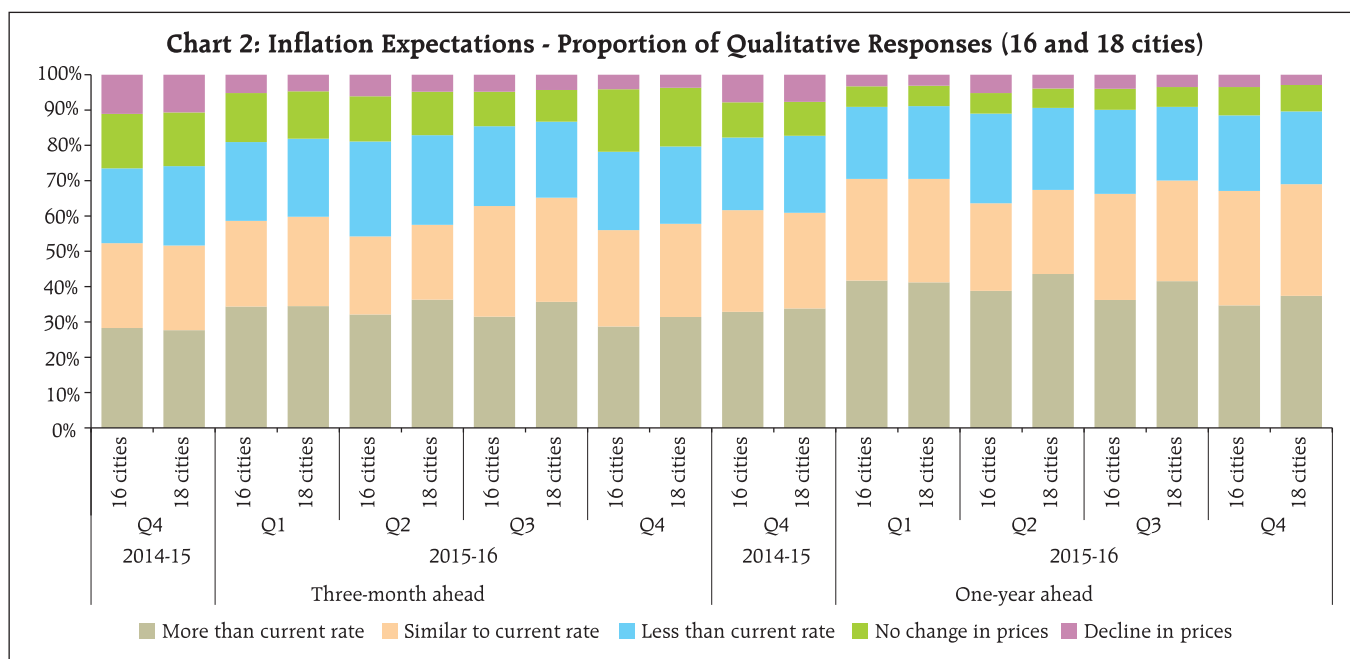
The survey schedule is organised into four blocks: Block 1 collects information on respondent's profile; in Blocks 2 and Block 3, qualitative response on general and product group-wise price expectations from the respondents for three month and one year ahead, respectively, are collected and Block 4 collects quantitative response on current and expected inflation rates. For the qualitative response, the options 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*. For the quantitative response, the inflation rate ranges from '*less than 1 per cent*' to '*16 per cent and above*', with intermediate class intervals of size 100 basis points.

\* Prepared in the Division of Household Surveys, Department of Statistics and Information Management, Reserve Bank of India, Mumbai. The previous annual article was published in June 2015 issue of the RBI Bulletin. The observations / views expressed in the article is based on survey results and not that of Reserve Bank of India.

Prior to March 2015 round, the survey was conducted in 16 cities covering four metropolitan cities, *viz.*, Delhi, Kolkata, Mumbai and Chennai, and twelve major cities *viz.*, Ahmedabad, Bengaluru, Bhopal, Bhubaneswar, Guwahati, Hyderabad, Jaipur, Kolhapur, Lucknow, Nagpur, Patna and Thiruvananthapuram. From March 2015 round onwards, the coverage of survey was further extended as per the recommendations of Technical Advisory Committee on Surveys (TACS), by including three cities *viz.*, Chandigarh, Raipur and Ranchi, and excluding Kolhapur. The survey covered 5500 households in each round, selecting 500 households from each metro and 250 households from each major city. The selected households are spread across the cities, with adequate representation of households with respect to gender and occupation.

During the study period, the survey result shows that there is a consistency in the overall inflation perceptions and expectations for 16 and 18 cities, in terms of both qualitative and quantitative responses (Chart 1 and 2). Further, both data show more or less similar trends in inflation perceptions and expectations. The subsequent discussions are based on the survey results from 18 cities.





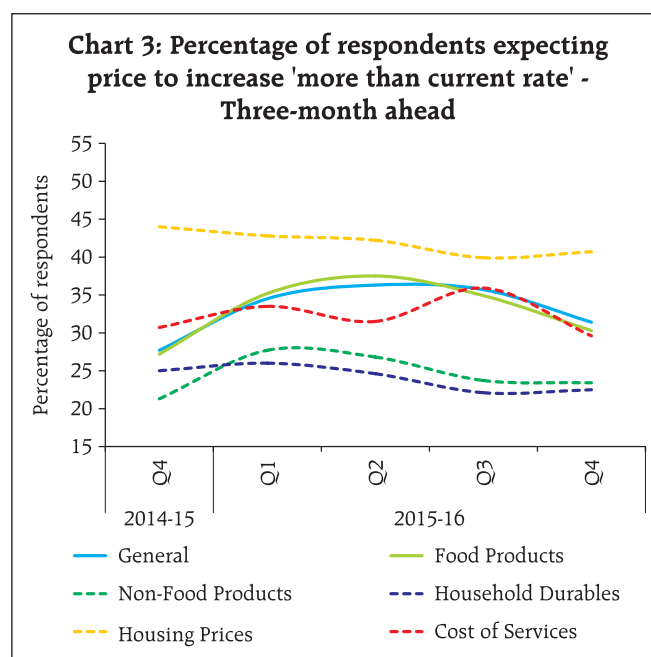
### 3 Survey Results

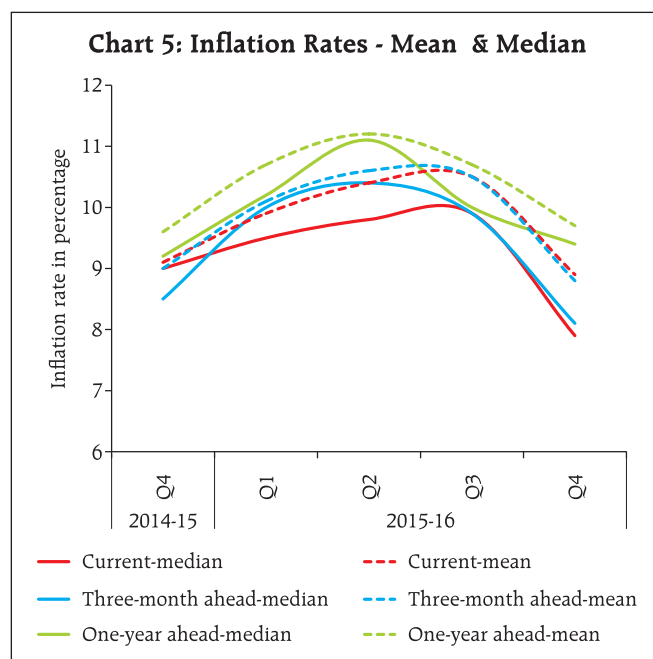
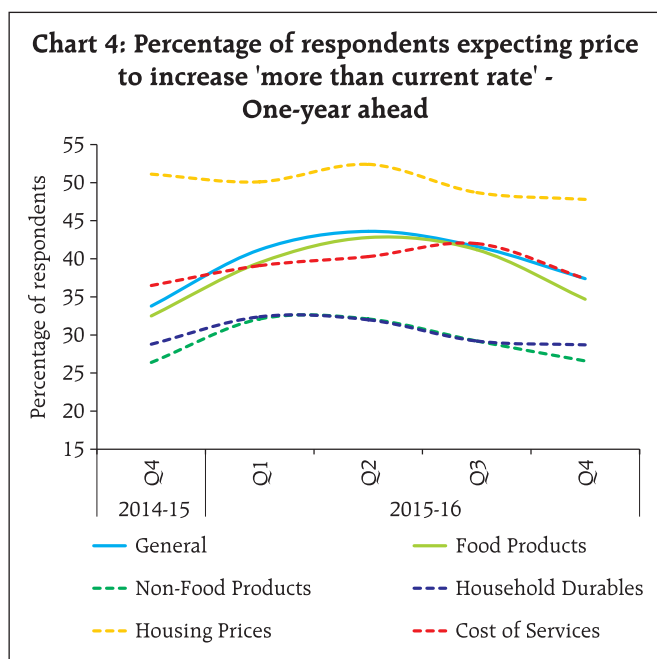
#### 3.1 Movements of Price Expectations for Three-Month and One-Year ahead

The percentage of respondents expecting general prices to increase in three-month and one-year ahead varied during the financial year 2015-16. These proportions reached the minimum level in Q4:2015-16 and it was around 80 per cent and around 90 per cent respectively for three-month and one-year ahead expectations. The percentage of respondents expecting general price to increase 'more than current rate' in the next three-month period moved up marginally from 34.5 per cent in Q1: 2015-16 to 36.3 per cent in Q2: 2015-16, but declined to 31.4 per cent in Q4:2015-16. The said expectation for the next one-year period declined from 41.2 per cent in Q1: 2015-16 to 37.4 per cent in Q4: 2015-16.

Tables 3.1 to 3.4 presents cross-tabulation of three-month and one-year ahead general price expectations for the study period. Results show that majority of households who expected general price to increase 'more than current rate' in three-month ahead, also expected the same for one-year ahead across the study period.

Results show that there is a moderation in inflation expectations among all product groups except for services for three-month ahead since Q2:2015-16 and it is reflected in the decline in percentage of households expecting prices to increase *more than current rate* (Chart 3). Similar trend was observed for one-year ahead expectations across the product groups (Chart 4). It was observed that the proportion of





respondents expecting general price to increase *more than current rate* is almost similar to those of *food products* and *services*, for both three-month and one-year ahead periods. Also, these proportions moved closely for *non-food products* and *household durables*. On the other hand, households' expectations for *housing* were relatively higher since Q4: 2014-15.

**3.2 Respondents' Current Inflation Perception vis-à-vis Expectations**

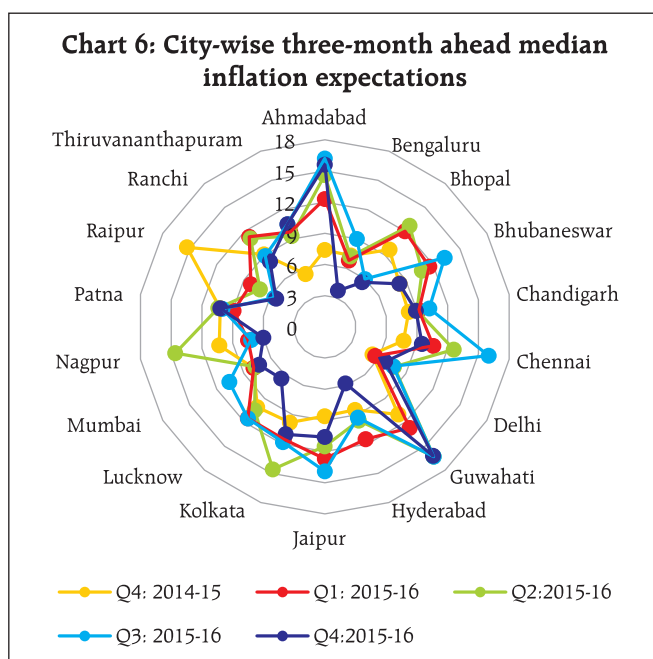
The quantitative responses show that the median inflation perception and expectations (three-month and one-year ahead) remained elevated till Q2: 2015-16 and then moderated considerably (Chart 5). Also, it was observed that the mean inflation perceptions and expectations were almost same in Q3:2015-16. Further, mean and median inflation expectations were generally higher than those of current perceptions in all quarters.

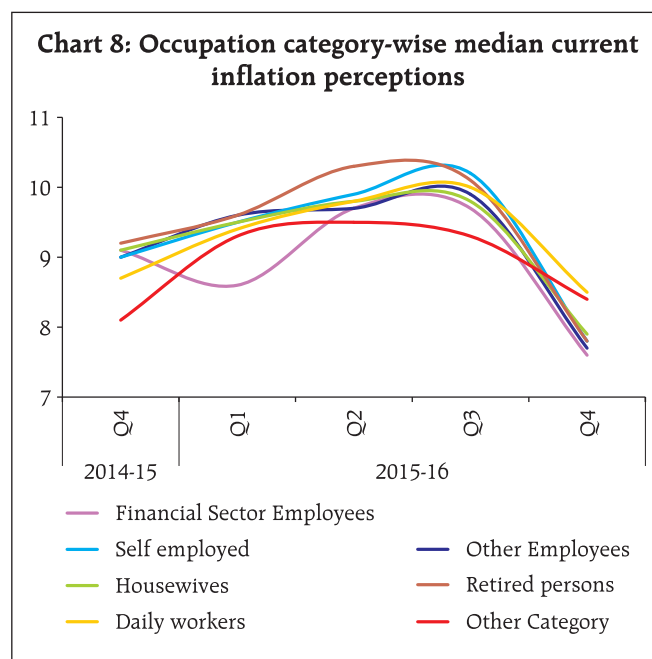
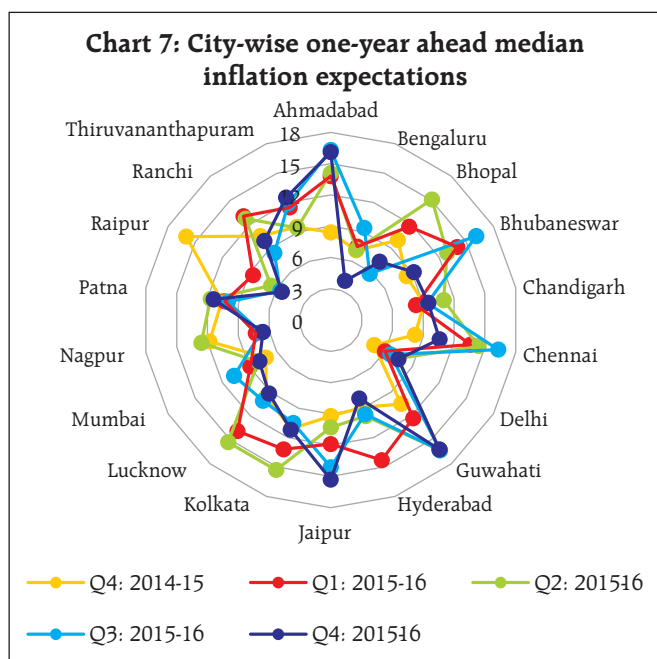
**3.3 Identification of Major Sources of Variation**

An analysis of variance (ANOVA) revealed that city has been a significant source of variation for inflation perceptions and expectations (Table 4). Other significant sources of variation were age-group and occupation-category of the respondents.

**3.4 City-wise Inflation Expectations**

From Charts 6 and 7, it can be seen that in each survey round, city-wise expected inflation rates varied considerably. The recent moderation in inflation expectations was well spread across the cities. Raipur recorded the lowest inflation expectations for both three-month and one-year ahead periods in Q2: 2015-16 and Q3: 2015-16, whereas Guwahati recorded the





highest in Q2:2015-16, Q3:2015-16 and Q4:2015-16 (Table 5).

**3.5 Occupation-wise Inflation Perceptions and Expectations**

Respondents from various occupation categories showed similar trend with respect to inflation perception over the quarters (Chart 8). Retired persons generally, reported relatively higher median inflation perceptions and financial sector employees and other category reported the lower median inflation perceptions.

**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 is calculated and given in Table 6. It is observed that the confidence interval has a small width indicating that the point estimates are quite precise for estimating the

population mean of households' inflation perceptions and expectations.

**4 Conclusions**

The median rates of inflation perceptions and expectations of households dipped to the lowest in Q4: 2015-16. This fall is well spread across the cities and occupational categories covered in the survey. The moderation in price expectation was also observed across various product-groups. Among the product-groups, the highest proportion of households expected housing prices to increase by more than current rate, whereas the lowest proportion was for non-food products and household durables. The general price expectations are more closely aligned with price expectations on food products and services compared to other product groups. City has been a significant source of variation for inflation perceptions and expectations, as observed throughout the survey history.

## Annex-Data Tables

Inflation Rate	Current Inflation Rates				Inflation Expectations Three-month Ahead				Inflation Expectations One-year Ahead			
	Q1: 2015-16	Q2: 2015-16	Q3: 2015-16	Q4: 2015-16	Q1: 2015-16	Q2: 2015-16	Q3: 2015-16	Q4: 2015-16	Q1 : 2015-16	Q2: 2015-16	Q3: 2015-16	Q4: 2015-16
<1	0.3	0.6	0.2	0.4	0.7	0.5	0.2	0.5	0.7	0.5	0.1	0.8
1-2	0.5	0.7	0.2	1.2	1.7	0.8	0.3	2.1	0.5	0.6	0.3	1.6
2-3	1.2	1.2	0.7	3.4	2.0	1.8	1.3	4.7	1.3	1.4	0.9	3.2
3-4	1.6	2.5	1.1	4.8	4.1	2.8	2.1	6.0	3.1	3.0	1.9	4.6
4-5	6.4	6.4	5.2	9.2	4.7	5.3	4.9	9.6	6.1	6.2	4.8	9.1
5-6	9.3	7.8	10.6	16.5	6.5	7.0	6.7	10.7	6.7	5.8	7.5	8.8
6-7	8.7	5.9	7.1	8.3	7.8	6.0	6.6	8.1	5.6	4.4	8.3	5.0
7-8	7.7	6.3	7.7	7.1	8.8	6.1	8.7	7.4	5.7	4.2	7.3	6.5
8-9	6.0	4.9	5.8	5.4	7.7	5.1	7.3	8.2	8.1	5.5	7.3	6.6
9-10	18.3	16.7	12.9	9.8	5.7	10.6	12.6	8.0	10.9	10.1	11.4	9.2
10-11	10.5	11.4	11.1	8.5	11.5	9.2	10.3	7.3	8.8	8.0	9.2	8.4
11-12	3.6	3.4	4.1	2.2	6.5	7.0	5.9	2.9	4.3	5.2	6.5	4.6
12-13	1.5	2.0	2.3	1.7	4.5	5.5	3.7	2.7	3.6	5.0	2.1	3.4
13-14	0.8	1.0	1.3	0.9	2.4	2.8	2.3	1.4	2.6	3.3	1.7	2.2
14-15	4.7	4.2	4.3	2.4	5.4	5.0	3.5	2.3	5.9	6.7	1.8	4.1
15-16	3.6	3.3	3.4	3.7	3.6	3.8	3.3	2.3	4.8	4.8	1.5	4.3
>=16	15.3	21.7	22.3	14.6	16.5	20.9	20.2	15.7	21.5	25.3	27.4	17.5
<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			
		Mean	Median	Three-month Ahead		One-year Ahead	
				Mean	Median	Mean	Median
39	Q4:2014-15	9.1	9.0	9.0	8.5	9.6	9.2
40	Q1:2015-16	9.9	9.5	10.1	10.0	10.7	10.2
41	Q2:2015-16	10.4	9.8	10.6	10.4	11.2	11.1
42	Q3:2015-16	10.5	9.9	10.5	9.9	10.7	10.0
43	Q4:2015-16	8.9	7.9	8.8	8.1	9.7	9.4

**Note:** Derived from the distribution observed in Table-1

		General price expectations Three-month Ahead					
General price expectations One-year Ahead		Price increase more than current rate	Price increase similar to current rate	Price increase less than current rate	No change in prices	Decline in prices	Total
	Price increase more than current rate	26.1	7.5	3.7	2.7	1.2	41.2
	Price increase similar to current rate	4.8	14.8	4.3	4.0	1.4	29.3
	Price increase less than current rate	2.1	1.7	12.1	4.1	0.5	20.6
	No change in prices	1.0	0.9	1.3	2.0	0.6	5.8
	Decline in prices	0.5	0.3	0.7	0.6	1.0	3.1
	<b>Total</b>	<b>34.5</b>	<b>25.3</b>	<b>22.1</b>	<b>13.4</b>	<b>4.7</b>	<b>100.0</b>

General price expectations for one-year ahead is dependent on general price expectations for three-month ahead at 5 per cent level of significance

		General price expectations Three-month Ahead					
General price expectations One-year Ahead		Price increase more than current rate	Price increase similar to current rate	Price increase less than current rate	No change in prices	Decline in prices	Total
	Price increase more than current rate	29.2	7.3	3.7	2.9	0.6	43.6
	Price increase similar to current rate	3.8	10.7	5.3	3.3	0.8	23.8
	Price increase less than current rate	2.0	2.2	14.6	3.4	1.0	23.2
	No change in prices	0.9	0.8	1.3	1.9	0.5	5.5
	Decline in prices	0.4	0.2	0.4	0.8	2.0	3.9
	<b>Total</b>	<b>36.3</b>	<b>21.2</b>	<b>25.4</b>	<b>12.3</b>	<b>4.8</b>	<b>100.0</b>

General price expectations for one-year ahead is dependent on general price expectations for three-month ahead at 5 per cent level of significance

		General price expectations Three-month Ahead					
General price expectations One-year Ahead		Price increase more than current rate	Price increase similar to current rate	Price increase less than current rate	No change in prices	Decline in prices	Total
	Price increase more than current rate	28.1	8.3	3.0	1.8	0.3	41.6
	Price increase similar to current rate	3.6	16.8	4.1	2.9	1.0	28.5
	Price increase less than current rate	2.3	2.6	12.6	2.4	1.0	20.9
	No change in prices	1.0	1.2	1.2	1.4	0.7	5.6
	Decline in prices	0.7	0.5	0.6	0.5	1.2	3.5
	<b>Total</b>	<b>35.7</b>	<b>29.5</b>	<b>21.5</b>	<b>9.0</b>	<b>4.3</b>	<b>100.0</b>

General price expectations for one-year ahead is dependent on general price expectations for three-month ahead at 5 per cent level of significance



<b>Table 3.4. Cross-tabulation of General Price Expectations for Three-month Ahead and One-year Ahead Q4:2015-16: Round 43 (18 cities)</b>							
<b>General price expectations One-year Ahead</b>	<b>General price expectations Three-month Ahead</b>						
		<b>Price increase more than current rate</b>	<b>Price increase similar to current rate</b>	<b>Price increase less than current rate</b>	<b>No change in prices</b>	<b>Decline in prices</b>	<b>Total</b>
	Price increase more than current rate	24.5	5.6	3.1	3.4	0.7	37.4
	Price increase similar to current rate	4.0	17.5	4.3	5.3	0.5	31.6
	Price increase less than current rate	1.5	2.1	12.7	3.8	0.6	20.6
	No change in prices	1.0	0.9	1.4	3.4	0.8	7.5
	Decline in prices	0.4	0.3	0.4	0.6	1.2	2.9
<b>Total</b>	31.4	26.4	21.9	16.6	3.7	100.0	

General price expectations for one-year ahead is dependent on general price expectations for three-month ahead at 5 per cent level of significance

<b>Table 4: ANOVA Results: Factors that Explain the Total Variability (18 cities)</b>				
<b>Survey Round</b>	<b>Survey Quarter</b>	<b>Current</b>	<b>Three-month Ahead</b>	<b>One-year Ahead</b>
39	Q4: 2014-15	City	City	City
40	Q1: 2015-16	City, Category	City, Category, Age-Group	City, Category
41	Q2: 2015-16	City, Age-Group, Gender	City, Age-Group, Gender	City, Age-Group, Gender
42	Q3: 2015-16	City, Age-Group	City, Age-Group	City, Age-Group
43	Q4: 2015-16	City, Age-Group	City	City, Category

	Current				Three-month Ahead				One-year Ahead			
	Q1: 2015-16	Q2: 2015-16	Q3: 2015-16	Q4: 2015-16	Q1: 2015-16	Q2: 2015-16	Q3: 2015-16	Q4: 2015-16	Q1 : 2015-16	Q2: 2015-16	Q3: 2015-16	Q4: 2015-16
Ahmadabad	11.9	12.5	15.8	10.9	12.3	14.6	16.2	15.6	13.8	14.1	16.3	16.1
Bengaluru	5.6	6.0	9.7	3.6	6.8	7.2	9.0	3.7	7.5	7.2	9.4	4.0
Bhopal	10.2	10.2	5.9	5.2	12.0	12.7	6.0	5.6	11.7	15.1	5.8	7.3
Bhubaneswar	9.7	9.8	11.6	8.0	11.6	10.8	13.3	8.3	14.0	12.9	16.1	9.2
Chennai	10.3	12.5	16.3	10.1	10.6	12.6	16.0	9.5	13.6	14.4	16.3	10.6
Delhi	6.5	7.4	6.3	6.3	5.6	7.7	7.6	6.7	6.0	7.4	6.6	7.5
Guwahati	11.5	16.4	16.3	16.1	12.7	16.3	16.3	16.2	12.3	16.3	16.3	16.2
Hyderabad	10.3	9.0	9.1	6.6	11.5	9.6	9.3	5.8	14.3	9.8	9.6	8.0
Jaipur	9.9	9.7	12.9	14.3	12.7	11.5	13.9	10.6	11.9	10.3	14.1	15.3
Kolkata	11.8	14.4	10.8	10.4	11.5	14.6	11.8	11.0	13.2	15.3	10.5	11.2
Lucknow	10.8	14.6	10.9	7.3	11.5	10.5	11.5	6.5	13.9	15.3	10.1	9.2
Mumbai	8.0	6.9	10.6	7.1	7.9	7.7	10.6	7.3	8.9	8.0	10.7	7.9
Nagpur	6.5	11.7	6.4	5.4	7.5	14.6	7.2	6.0	7.3	12.6	6.8	6.6
Patna	8.2	9.1	9.4	9.0	8.9	10.4	10.0	10.2	10.3	11.7	10.0	11.4
Thiruvananthapuram	10.8	10.3	12.5	13.6	9.7	9.3	10.5	10.5	11.5	9.4	11.9	12.5
Chandigarh	7.3	8.3	9.4	9.0	9.2	9.0	10.2	8.9	8.3	11.0	9.4	9.5
Ranchi	9.8	9.9	7.6	7.0	11.3	11.1	8.9	8.2	13.0	12.7	8.4	9.9
Raipur	6.9	6.3	6.3	5.2	8.2	7.2	5.6	5.4	8.6	6.6	5.6	5.4

Survey Round	Survey Quarter	Current		Three-month Ahead		One-year Ahead	
		BCI for Mean	Interval width	BCI for Mean	Interval width	BCI for Mean	Interval width
40	Q1:2015-16	(9.73, 10.01)	0.28	(10.05, 10.35)	0.30	(10.80, 11.11)	0.31
41	Q2:2015-16	(10.22, 10.52)	0.30	(11.00, 11.31)	0.31	(11.52, 11.85)	0.33
42	Q3:2015-16	(10.39, 10.69)	0.30	(10.62, 10.92)	0.30	(11.13, 11.45)	0.32
43	Q4:2015-16	(8.70, 9.01)	0.31	(8.69, 9.01)	0.32	(9.54, 9.86)	0.32