

# **Inflation Monitor**

**July 2017**



**State Bank of Pakistan**

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## **Review**

### **Inflation in Brief**

1. Headline CPI inflation (2007-08=100) is recorded at level of 2.9 percent on year-on-year basis in July 2017 as compared to 3.9 percent in the previous month and 4.1 percent in the corresponding month of last year.
2. CPI inflation on month-on-month basis is recorded at level of 0.3 percent in July 2017 as compared to -0.4 percent previous month and 1.3 percent during the corresponding month of last year. Seasonally adjusted month-on-month CPI inflation is recorded at -0.35 percent in July 2017 compared to -0.33 percent in the previous month.
3. Core inflation (trimmed) on year-on-year basis is recorded at 4.0 percent in July 2017 as compared to 4.2 percent in the previous month and 3.6 percent during corresponding month of last year.
4. On month-on-month basis, the Core inflation (trimmed) is recorded at 0.4 percent in July 2017 as compared to zero level in the previous month and 0.5 percent during corresponding month of last year.
5. Non-food, non-energy inflation measured by CPI Core (NFNE) on year-on-year basis is recorded at 5.6 percent in July 2017 as compared to 5.5 percent in the previous month. It was 4.5 percent in the corresponding month of last year.
6. Core NFNE inflation on month-on-month basis recorded at 0.7 percent in July 2017 compared to 0.1 percent in the previous month. Core NFNE inflation was 0.6 percent in the corresponding month of last year.

7. WPI inflation on year-on-year basis decreased to 0.7 percent in July 2017 as compared to 3.3 percent in the previous month and 3.0 percent during the corresponding month of last year.
8. WPI inflation on month-on-month basis recorded at -0.2 percent in July 2017 as compared to -0.5 percent in the previous month and 2.3 percent in the corresponding month of last year.
9. SPI inflation on year-on-year basis recorded at 0.2 percent in July 2017 as compared to 1.9 percent in the previous month. It was 1.7 percent in the corresponding month of last year.
10. SPI inflation on month-on-month basis recorded at -0.6 percent in July 2017 as compared to 0.1 percent in the previous month. It was 1.0 percent in the corresponding month of last year.

### **1.1 A New Measure of Core Inflation**

A new method of permanently excluding relatively volatile commodities from CPI basket in Pakistan has been developed by SBP. This is achieved by making use of trimming approach on past data on monthly CPI changes to isolate a Relatively Stable Component of CPI (RSC-CPI) as a new measure of core inflation. This method ensures inclusion of both food and non-food commodities that show persistent price behavior in Pakistan (see technical notes for details). Developments in core inflation measured by RSC- CPI for the month of July 2017 are described below:

- Core RSC inflation on year-on-year basis is recorded at 4.4 percent in July 2017 as compared to 4.5 percent in the previous month and 4.8 percent during the corresponding month of last year.

11. Core RSC inflation on month-on-month basis is recorded at 0.4 percent in July 2017 compared to -0.4 percent in the previous month and it was 0.6 percent in the corresponding month of last year.

Monthly CPI, WPI and SPI data is summarized in the following table.

| Table 1.1 Inflation Trends (percent) (Base 2007- 08 = 100)                                                           |               |      |      |      |          |     |                |     |         |     |       |      |               |      |                  |      |
|----------------------------------------------------------------------------------------------------------------------|---------------|------|------|------|----------|-----|----------------|-----|---------|-----|-------|------|---------------|------|------------------|------|
| Period                                                                                                               | CPI Inflation |      |      |      |          |     | Core Inflation |     |         |     |       |      | WPI Inflation |      | SPI*** Inflation |      |
|                                                                                                                      | General       |      | Food |      | Non-food |     | NFNE*          |     | Trimmed |     | RSC** |      |               |      |                  |      |
|                                                                                                                      | YoY           | MoM  | YoY  | MoM  | YoY      | MoM | YoY            | MoM | YoY     | MoM | YoY   | MoM  | YoY           | MoM  | YoY              | MoM  |
| Jul-16                                                                                                               | 4.1           | 1.3  | 4.7  | 2.5  | 3.7      | 0.5 | 4.5            | 0.6 | 3.6     | 0.5 | 4.8   | 0.6  | 3.0           | 2.3  | 1.7              | 1.0  |
| Aug-16                                                                                                               | 3.6           | -0.3 | 3.4  | -0.9 | 3.7      | 0.2 | 4.6            | 0.2 | 3.5     | 0.1 | 4.8   | 0.2  | 3.5           | 0.0  | 2.0              | -0.1 |
| Sep-16                                                                                                               | 3.9           | 0.2  | 4.0  | 0.1  | 3.8      | 0.2 | 4.8            | 0.3 | 3.7     | 0.1 | 4.7   | 0.2  | 3.4           | -0.5 | 1.6              | 0.0  |
| Oct-16                                                                                                               | 4.2           | 0.8  | 4.4  | 0.8  | 4.1      | 0.8 | 5.1            | 0.9 | 3.8     | 0.6 | 4.9   | 0.7  | 2.8           | 0.0  | 1.4              | 0.7  |
| Nov-16                                                                                                               | 3.8           | 0.2  | 3.3  | 0.2  | 4.1      | 0.2 | 5.3            | 0.2 | 3.8     | 0.2 | 5.0   | 0.2  | 2.6           | -0.2 | 0.6              | 0.3  |
| Dec-16                                                                                                               | 3.7           | -0.7 | 3.0  | -1.9 | 4.2      | 0.2 | 5.2            | 0.1 | 3.7     | 0.1 | 4.7   | 0.2  | 3.1           | -0.1 | 0.5              | -0.4 |
| Jan-17                                                                                                               | 3.7           | 0.2  | 2.6  | -1.0 | 4.4      | 1.0 | 5.4            | 1.1 | 3.8     | 0.6 | 4.9   | 0.9  | 4.2           | 0.5  | 0.4              | -0.6 |
| Feb-17                                                                                                               | 4.2           | 0.3  | 3.7  | 0.3  | 4.6      | 0.3 | 5.3            | 0.2 | 4.1     | 0.2 | 4.9   | 0.2  | 5.3           | 0.5  | 1.6              | 0.4  |
| Mar-17                                                                                                               | 4.9           | 0.8  | 5.0  | 1.9  | 4.9      | 0.1 | 5.2            | 0.1 | 4.5     | 0.2 | 5.0   | 0.2  | 6.4           | 0.7  | 3.9              | 2.0  |
| Apr-17                                                                                                               | 4.8           | 1.4  | 4.4  | 1.7  | 5.1      | 1.2 | 5.5            | 1.3 | 4.8     | 0.8 | 5.3   | 1.1  | 6.0           | 0.9  | 2.9              | -0.7 |
| May-17                                                                                                               | 5.0           | 0.0  | 4.9  | -0.2 | 5.1      | 0.2 | 5.5            | 0.2 | 4.8     | 0.2 | 5.3   | 0.3  | 5.2           | -0.2 | 2.9              | -0.7 |
| Jun-17                                                                                                               | 3.9           | -0.4 | 2.4  | -1.1 | 5.0      | 0.1 | 5.5            | 0.1 | 4.2     | 0.0 | 4.5   | -0.4 | 3.3           | -0.5 | 1.9              | 0.1  |
| Jul-17                                                                                                               | 2.9           | 0.3  | -0.1 | 0.0  | 5.1      | 0.6 | 5.6            | 0.7 | 4.0     | 0.4 | 4.4   | 0.4  | 0.7           | -0.2 | 0.2              | -0.6 |
| * NFNE is Non-food non-energy      ** Relatively Stable Component of CPI      *** SPI for all income groups combined |               |      |      |      |          |     |                |     |         |     |       |      |               |      |                  |      |

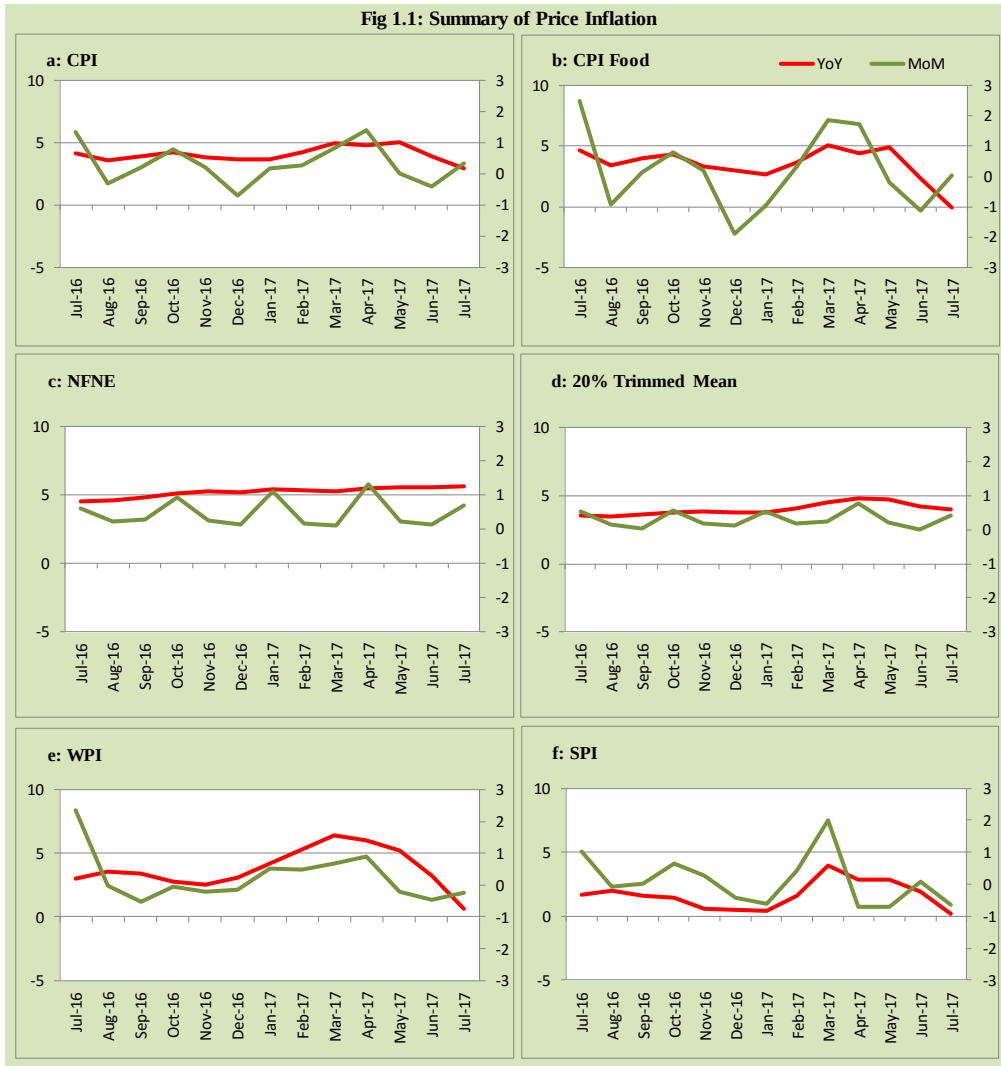


Fig 1.2: Movements in Price Indices (percent)

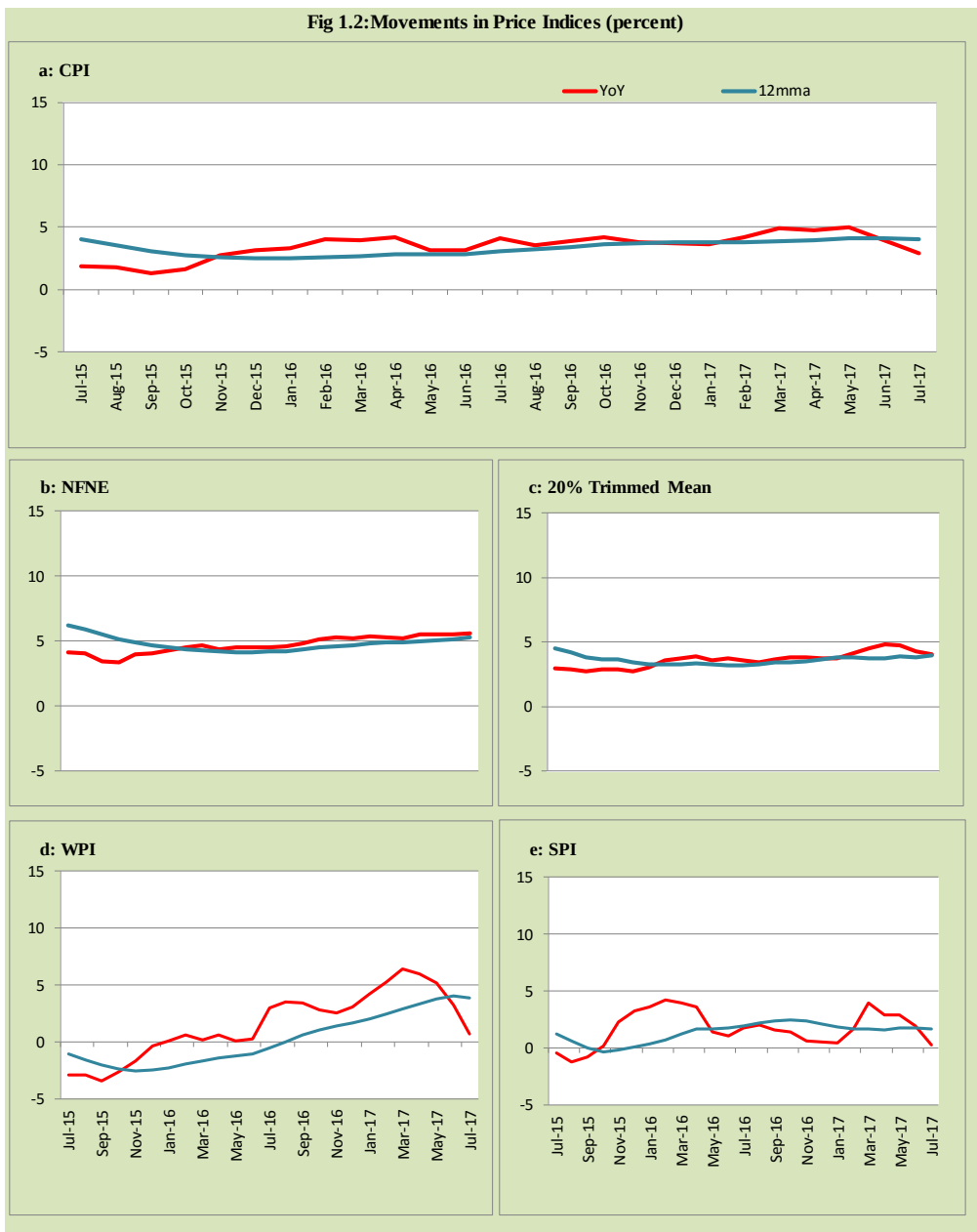
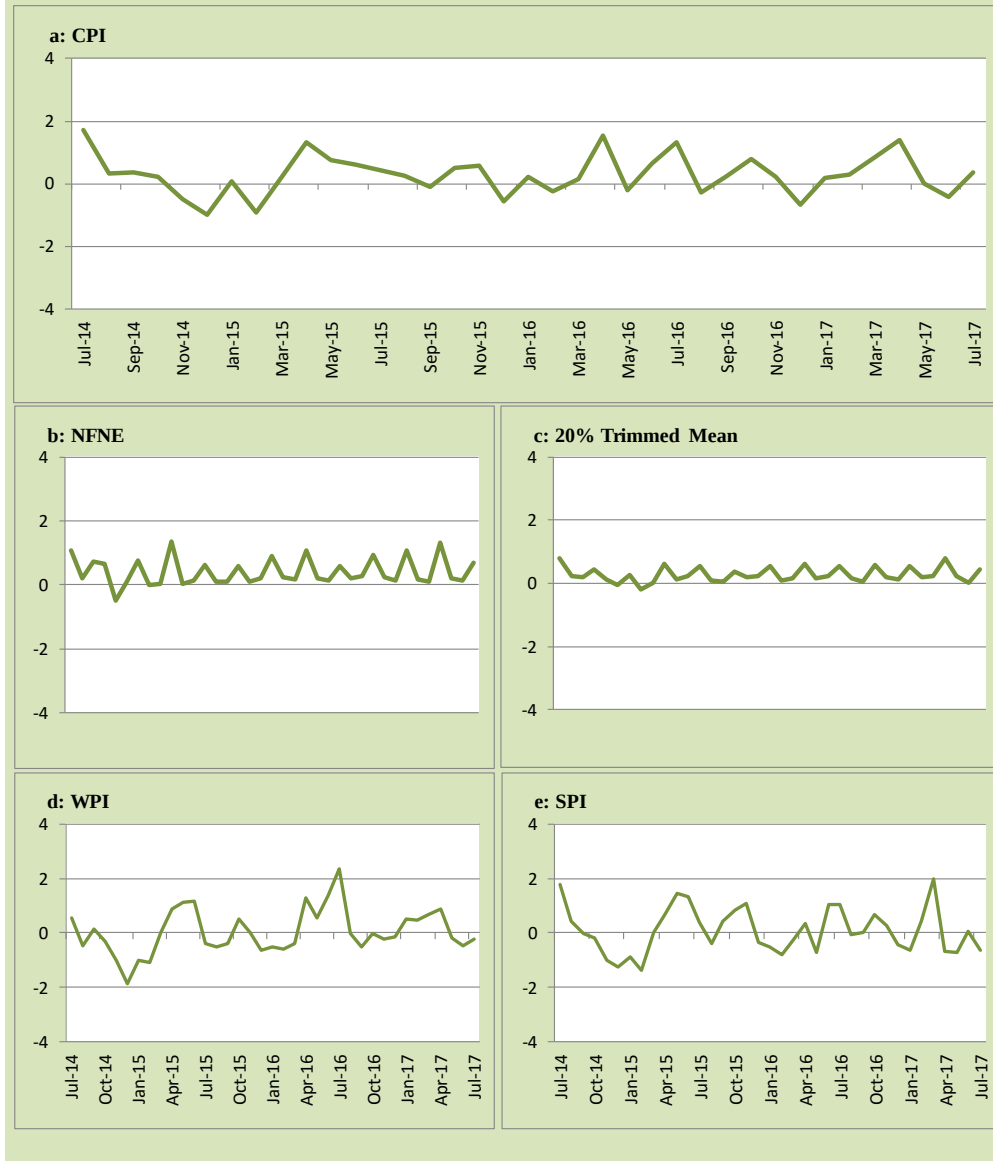
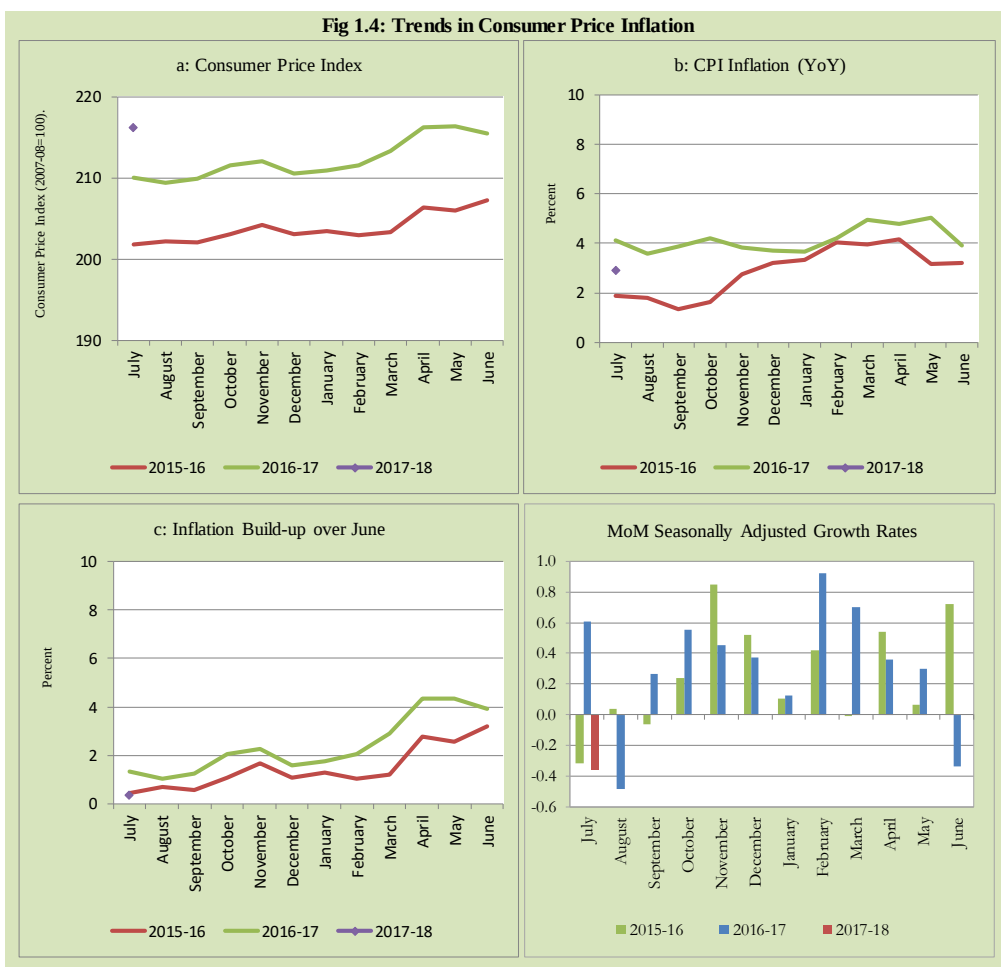


Fig 1.3: Movements in Price Indices -MoM ( percent)



**Fig 1.4: Trends in Consumer Price Inflation**



## 2. City wise Inflation

CPI Inflation on year-on-year basis in federal and provincial capitals of Pakistan showed mixed trend during July 2017. Among these five cities, the lowest inflation was observed in Karachi and Peshawar at 1.3 percent while the highest inflation was observed in Islamabad at 4.7 percent (Table A6 of annexure-A).

| <b>Table 2.1 City-wise Inflation of Selected Cities (percent)</b> |               |            |               |            |               |            |
|-------------------------------------------------------------------|---------------|------------|---------------|------------|---------------|------------|
|                                                                   | <b>Jul-16</b> |            | <b>Jun-17</b> |            | <b>Jul-17</b> |            |
|                                                                   | <b>MoM</b>    | <b>YoY</b> | <b>MoM</b>    | <b>YoY</b> | <b>MoM</b>    | <b>YoY</b> |
| <b>Overall CPI</b>                                                | 1.3           | 4.1        | -0.4          | 3.9        | 0.3           | 2.9        |
| Islamabad                                                         | 1.2           | 3.2        | 0.0           | 5.0        | 1.0           | 4.7        |
| Karachi                                                           | 0.8           | 4.4        | -0.7          | 2.1        | 0.0           | 1.3        |
| Lahore                                                            | 1.7           | 2.5        | -0.7          | 4.9        | 0.5           | 3.7        |
| Peshawar                                                          | 2.3           | 3.6        | -0.8          | 3.2        | 0.4           | 1.3        |
| Quetta                                                            | 1.4           | 3.4        | 1.2           | 2.7        | 0.8           | 2.1        |

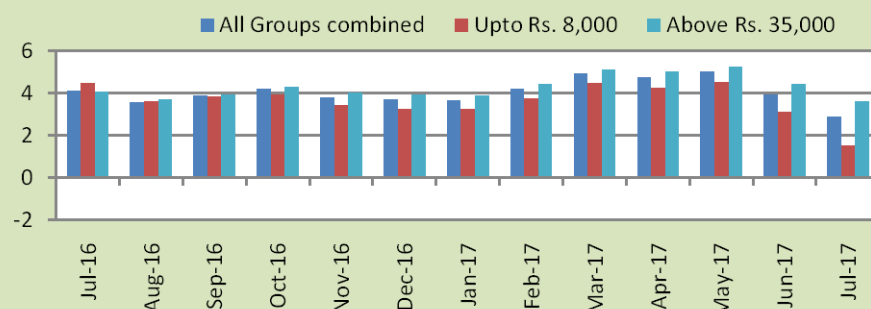
### 3. Income Group wise Inflation

Income group-wise data shows that income group above Rs. 35,000 witnessed higher inflation as compared to other quintiles as well as overall CPI during July 2017 in General, Food and Non-food groups. The lowest income group (Up to Rs. 8, 000) observed lowest inflation in general and food groups among income groups during the month of July 2017 (Table A7 of annexure-A).

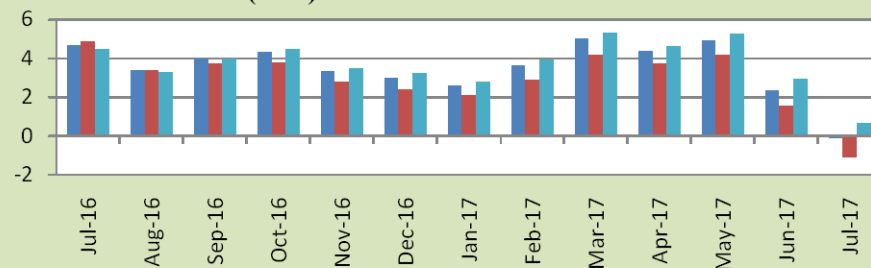
| <b>Table 3.1 Income Group- wise Inflation (YoY) (percent)</b> |                |               |               |               |               |               |                 |               |               |
|---------------------------------------------------------------|----------------|---------------|---------------|---------------|---------------|---------------|-----------------|---------------|---------------|
| <b>Income Groups</b>                                          | <b>General</b> |               |               | <b>Food</b>   |               |               | <b>Non-food</b> |               |               |
|                                                               | <b>Jul-16</b>  | <b>Jun-17</b> | <b>Jul-17</b> | <b>Jul-16</b> | <b>Jun-17</b> | <b>Jul-17</b> | <b>Jul-16</b>   | <b>Jun-17</b> | <b>Jul-17</b> |
| <b>All Groups Combined</b>                                    | 4.1            | 3.9           | 2.9           | 4.7           | 2.4           | -0.1          | 3.7             | 5.0           | 5.1           |
| Up to Rs. 8,000                                               | 4.5            | 3.1           | 1.6           | 4.9           | 1.6           | -1.1          | 4.0             | 5.0           | 4.9           |
| Rs. 8,001- 12,000                                             | 4.6            | 3.3           | 2.0           | 4.7           | 1.9           | -0.7          | 4.4             | 4.8           | 4.9           |
| Rs. 12,001- 18,000                                            | 3.9            | 3.4           | 2.2           | 4.8           | 2.0           | -0.6          | 3.0             | 4.9           | 4.9           |
| Rs. 18,001- 35,000                                            | 4.4            | 3.6           | 2.4           | 4.9           | 2.1           | -0.4          | 4.1             | 4.8           | 4.7           |
| Above Rs. 35,000                                              | 4.1            | 4.4           | 3.6           | 4.5           | 2.9           | 0.7           | 3.9             | 5.2           | 5.2           |

**Fig 3.1: Income Group- wise Inflation**

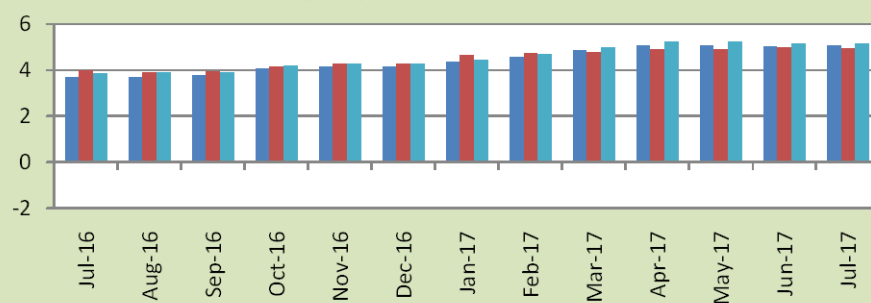
**a: CPI Overall Inflation (YoY)**



**b: CPI Food Inflation (YoY)**



**c: CPI Non-Food Inflation (YoY)**



#### 4. Weighted Contribution

The weighted contribution of food group in the overall inflation decreased to -1.32 percent during July 2017 from 24.92 percent in previous month. It was 47.51 percent in July 2016.

The weighted contribution of non-food group increased to 101.32 percent in July 2017 from 75.08 percent in previous month.

| Table 4.1 Weighted Contribution to CPI Inflation (YoY) |       |                     |                                         |           |           |        |
|--------------------------------------------------------|-------|---------------------|-----------------------------------------|-----------|-----------|--------|
| Period                                                 | Food  | Clothing & Footwear | Housing, Water, Elect, Gas & Other Fuel | Transport | Education | Others |
| Jul-16                                                 | 47.51 | 9.16                | 32.21                                   | -7.65     | 7.07      | 11.70  |
| Aug-16                                                 | 39.62 | 10.36               | 35.09                                   | -7.91     | 8.72      | 14.13  |
| Sep-16                                                 | 42.70 | 9.45                | 29.26                                   | -4.86     | 10.72     | 12.72  |
| Oct-16                                                 | 43.11 | 8.24                | 30.79                                   | -4.55     | 10.57     | 11.84  |
| Nov-16                                                 | 36.64 | 9.16                | 33.91                                   | -5.95     | 12.22     | 14.02  |
| Dec-16                                                 | 33.90 | 9.91                | 35.29                                   | -5.45     | 12.65     | 13.70  |
| Jan-17                                                 | 29.56 | 9.82                | 35.77                                   | -4.98     | 12.73     | 17.10  |
| Feb-17                                                 | 35.54 | 8.29                | 30.79                                   | 0.59      | 10.97     | 13.82  |
| Mar-17                                                 | 41.86 | 6.08                | 26.25                                   | 5.34      | 9.03      | 11.44  |
| Apr-17                                                 | 37.84 | 5.94                | 28.43                                   | 5.11      | 11.07     | 11.60  |
| May-17                                                 | 40.46 | 6.15                | 27.25                                   | 4.96      | 9.55      | 11.63  |
| Jun-17                                                 | 24.92 | 8.04                | 34.43                                   | 5.77      | 11.93     | 14.92  |
| Jul-17                                                 | -1.32 | 11.08               | 48.14                                   | 6.37      | 16.42     | 19.31  |

## 5. Inflation Diffusion Index

**Table 5.1 Inflation Diffusion Index - based on MoM change**

|                                               | Jul-16 | Aug-16 | Sep-16 | Oct-16 | Nov-16 | Dec-16 | Jan-17 | Feb-17 | Mar-17 | Apr-17 | May-17 | Jun-17 | Jul-17 |
|-----------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| General                                       | 32.7   | 39.7   | 10.3   | 30.1   | 41.1   | 33.5   | 32.3   | 38.0   | 28.5   | 41.6   | 35.3   | 22.4   | 36.8   |
| Food & Non-Alcoholic Beverages                | 51.8   | 34.2   | 6.1    | 20.0   | 28.2   | 17.9   | 10.5   | 35.1   | 25.7   | 40.4   | 27.1   | 5.3    | 28.7   |
| Alcoholic Beverages & Tobacco                 | 100.0  | 33.3   | -16.7  | -16.7  | 100.0  | 83.3   | 66.7   | 100.0  | 33.3   | 100.0  | 33.3   | 0.0    | 0.0    |
| Clothing & Footwear                           | 42.4   | 37.3   | 5.1    | 54.2   | 57.6   | 66.1   | 45.8   | 27.1   | 25.4   | 45.8   | 54.2   | 47.5   | 52.5   |
| Housing, Water, Elect, Gas & other Fuels      | 52.8   | 22.2   | 5.6    | 25.0   | 41.7   | 38.9   | 41.7   | 22.2   | 0.0    | 41.7   | 19.4   | 13.9   | 55.6   |
| Furnishing & Household Equip. Maintenance etc | 20.3   | 60.9   | 11.6   | 46.4   | 53.6   | 47.8   | 49.3   | 62.3   | 44.9   | 56.5   | 73.9   | 42.0   | 63.8   |
| Health                                        | 20.5   | 46.2   | 33.3   | 43.6   | 46.2   | 46.2   | 17.9   | 33.3   | 38.5   | 38.5   | 17.9   | 7.7    | 30.8   |
| Transport                                     | 4.7    | 27.9   | 9.3    | 2.3    | 7.0    | 0.0    | 30.2   | 30.2   | 11.6   | 11.6   | 11.6   | 16.3   | 16.3   |
| Communication                                 | 25.0   | 16.7   | 8.3    | 33.3   | 50.0   | 25.0   | 16.7   | 25.0   | 50.0   | 50.0   | 16.7   | 33.3   | 16.7   |
| Recreation & Culture                          | -2.6   | 7.7    | 10.3   | -7.7   | 25.6   | 23.1   | 15.4   | 30.8   | 23.1   | 17.9   | 12.8   | 10.3   | 20.5   |
| Education                                     | -6.3   | 50.0   | 37.5   | 37.5   | 43.8   | 0.0    | 18.8   | 6.3    | 12.5   | 37.5   | 6.3    | 12.5   | 18.8   |
| Restaurant & Hotels                           | 66.7   | 83.3   | 50.0   | 33.3   | 33.3   | 50.0   | 50.0   | 66.7   | 83.3   | 83.3   | 66.7   | 66.7   | 33.3   |
| Miscellaneous                                 | 48.6   | 77.1   | -2.9   | 60.0   | 71.4   | 40.0   | 77.1   | 60.0   | 45.7   | 57.1   | 57.1   | 40.0   | 37.1   |
| NFNE                                          | 24.9   | 42.3   | 11.5   | 34.6   | 45.6   | 37.6   | 39.1   | 37.6   | 28.1   | 40.2   | 38.5   | 28.4   | 42.3   |

See annexure B (Technical Notes) for the definition of Inflation Diffusion Index.

## 6. Domestic Commodity Prices

**Table 6.1 Inflation in Domestic CPI Food Commodities (percent)**

| Sr. No | Item                        | Unit   | Jul-16 |       | Jun-17 |       | Jul-17 |       |
|--------|-----------------------------|--------|--------|-------|--------|-------|--------|-------|
|        |                             |        | YoY    | MoM   | YoY    | MoM   | YoY    | MoM   |
| 1      | Wheat                       | 10 Kg  | -2.32  | 0.08  | 1.01   | 0.01  | 0.18   | -0.74 |
| 2      | Wheat Flour Bag             | 10 Kg  | -1.35  | 1.32  | 0.18   | -0.77 | -2.21  | -1.09 |
| 3      | Rice Basmati Sup. Qlty.     | Kg     | -9.00  | 1.54  | 12.49  | 0.41  | 11.95  | 1.05  |
| 4      | Pulse Masoor (Washed)       | Kg     | 8.88   | 0.19  | -16.11 | -1.02 | -16.34 | -0.10 |
| 5      | Pulse Moong (Washed)        | Kg     | -2.96  | -0.93 | -18.77 | -0.85 | -18.01 | 0.00  |
| 6      | Pulse Mash (Washed)         | Kg     | 47.13  | -0.88 | -24.82 | -0.15 | -24.96 | -1.06 |
| 7      | Pulse Gram                  | Kg     | 45.81  | 5.63  | -8.86  | -1.62 | -16.15 | -2.82 |
| 8      | Vegetable Ghee (Loose)      | Kg     | -2.07  | -0.77 | 4.31   | -0.03 | 5.19   | 0.07  |
| 9      | Sugar Refined               | Kg     | 2.38   | 3.60  | -11.01 | -3.37 | -15.80 | -1.97 |
| 10     | Milk Fresh (Unboiled)       | Ltr    | 4.37   | 0.79  | 3.92   | 0.00  | 3.81   | 0.68  |
| 11     | Tea- Tapal Danedar          | 200 Gm | 15.54  | -0.49 | 9.11   | -0.03 | 10.58  | 0.85  |
| 12     | Beef With Bone Av. Qlty.    | Kg     | 3.91   | 0.20  | 5.57   | 1.23  | 5.58   | 0.20  |
| 13     | Mutton Av. Qlty.            | Kg     | 7.01   | 0.65  | 7.47   | 1.25  | 7.01   | 0.22  |
| 14     | Chicken Farm Broiler (Live) | Kg     | -18.91 | -4.51 | -5.70  | -5.03 | 3.04   | 4.33  |
| 15     | Eggs Farm                   | Doz    | 2.22   | 8.89  | 13.72  | 4.46  | 8.35   | 3.75  |
| 16     | Potatoes                    | Kg     | 32.10  | 17.45 | 26.54  | 8.25  | 12.24  | 4.18  |
| 17     | Onion                       | Kg     | -23.34 | 1.57  | -14.15 | -7.17 | -7.03  | 10.00 |
| 18     | Tomatoes                    | Kg     | 58.41  | 92.22 | 8.16   | 9.41  | -45.10 | -2.43 |
| 19     | Ginger                      | Kg     | -38.43 | -0.93 | 6.46   | 3.19  | 17.33  | 9.18  |
| 20     | Garlic                      | Kg     | 66.10  | 23.73 | 7.56   | -7.77 | -16.71 | -4.19 |

## 7. Global Commodity Prices

**Table 7.1 Changes in Major Global Indices (percent)\***

| Item/ Group               | Jun-16 |      | May-17 |      | Jun-17 |      |
|---------------------------|--------|------|--------|------|--------|------|
|                           | YoY    | MoM  | YoY    | MoM  | YoY    | MoM  |
| <b>Overall</b>            | -18.1  | 6.0  | 17.4   | -0.1 | 8.2    | -2.3 |
| Food                      | 4.7    | 3.8  | 1.1    | -1.6 | 1.2    | 3.9  |
| Metals                    | -18.1  | -3.5 | 18.1   | -6.4 | 17.5   | -3.9 |
| Energy                    | -27.2  | 10.9 | 28.9   | 2.5  | 11.0   | -4.4 |
| Agricultural Raw Material | -10.3  | -0.1 | 5.8    | -1.4 | 3.5    | -2.3 |
| Cotton                    | -3.5   | 1.4  | 25.6   | 0.3  | 26.1   | 1.8  |

\*The latest prices for the month of July, 2017 are not available till date

Source: IMF

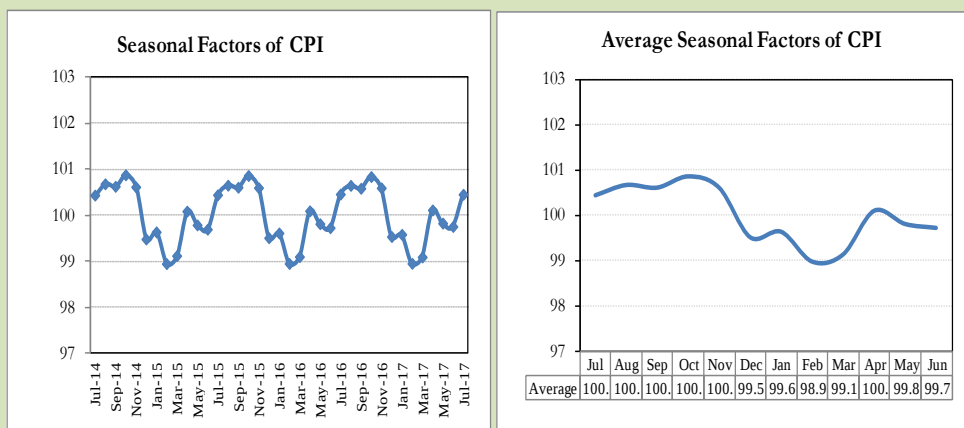
## **8. Seasonal Adjustment in CPI**

Seasonal adjustment is the process of estimating and removing the seasonal effects from a time series after decomposing it into seasonal, trend, cycle and irregular components. The purpose is to identify the different components of the time series and thus provide a better understanding of its underlying behavior. Seasonally adjusted changes are usually preferred for analyzing general price trends in the economy because they eliminate the effect of changes that normally occur at the same time and in about the same magnitude every year. Various statistical methods can be used to decompose a time series into its constituent components. The State Bank of Pakistan uses X-12- ARIMA Seasonal Adjustment Method for this purpose.

The changes in consumer prices are normally reported in terms of year-on-year and month-on-month basis. Seasonal adjustment is particularly useful for analyzing month-on-month changes. The monthly data series of Consumer Price Index (CPI) from July 2008 to July 2017 has been used for seasonal adjustment analysis. The seasonal analysis is carried out without taking trading-day or Islamic calendar month's effects.

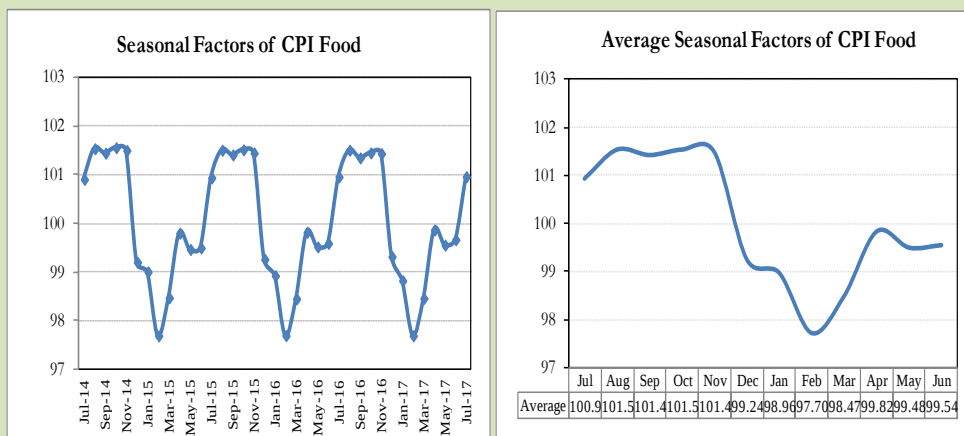
Figure 8.1 reveals that seasonality in CPI has been increasing over the period of last four years. Average seasonal factors reveal strong seasonality during the calendar year. There is an upward seasonality during the months from July to November and downward seasonality in the remaining months of the year. Upward and downward seasonality is above and below the trend line respectively. It is important to note that seasonal factors are estimates based on present and past experience and that future data may not necessarily show the same pattern of seasonal factors.

**Fig. 8.1 Seasonal Factors of CPI**



Note: Data Available in Annex Table 16.

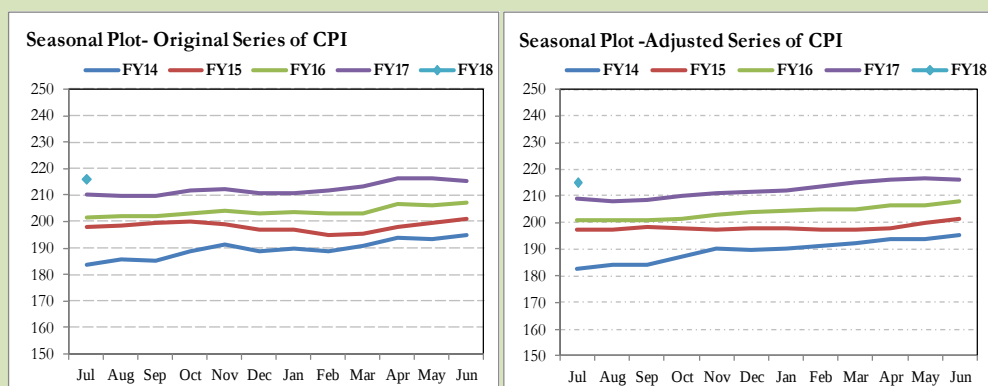
**Fig. 8.2 Seasonal Factors of CPI Food**



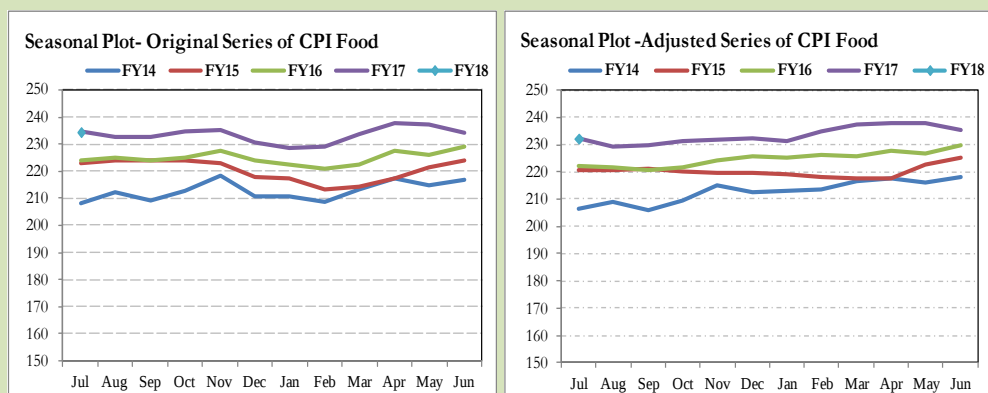
Note: Data Available in Annex Table 17.

Figures 8.3 & 8.4 show that seasonally adjusted series are relatively smoother than the original series due to the removal of the seasonal variations. The trend follows the long-term movement in original series, and is smoother than the original series because some irregular fluctuations have been removed.

**Fig. 8.3 Seasonal Plots of CPI**



**Fig. 8.4 Seasonal Plots of CPI (Food)**



Seasonally adjusted CPI for July 2017 stood at 215.20 against 216.19 in original series showing a decrease of 0.99 on account of adjustment of upward seasonality in July 2017.

Seasonally adjusted CPI food group for July 2017 stood at 232.23 against 234.47 in original series showing a decrease of 2.24 on account of adjustment of upward seasonality in July 2017.

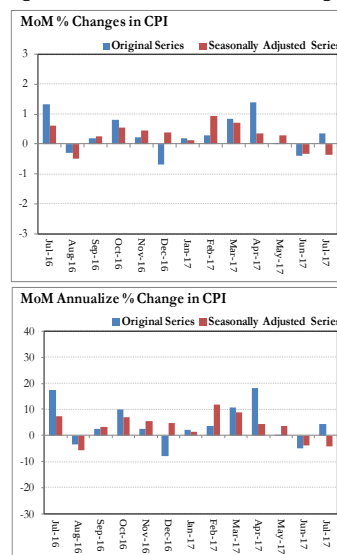
Month-on-month change of seasonally adjusted CPI series stood at -0.35% reflecting decrease during July 2017 over previous month and an increase of 0.34% in original series.

Month-on-month change of seasonally adjusted CPI food group series stood at -1.24% reflecting decrease during July 2017 over previous month and an increase of 0.04% in original series.

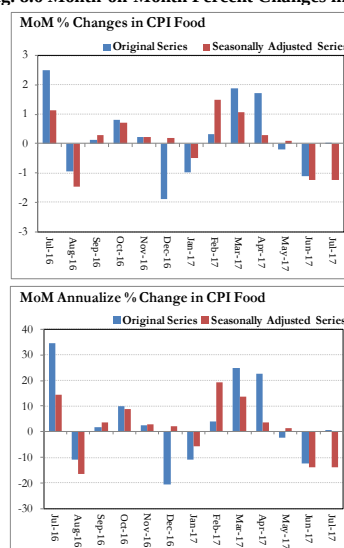
It is important to note that inflation rates should be analyzed on the basis of seasonally adjusted rates. This is especially needed for inflation rates on month-on-month basis.

The most recent annual rate of inflation is usually indicated by annualizing the seasonally adjusted month-on-month rate. Annualized rate of CPI inflation in July 2017 (corresponding to the seasonally adjusted month-on-month rate) is -4.16 percent.

**Fig. 8.5 Month-on-Month Percent Changes in CPI**



**Fig. 8.6 Month-on-Month Percent Changes in CPI Food**



**Annexure A**

| <b>Table A1: CPI Inflation by Groups (percent)</b> |              |            |             |            |            |            |             |
|----------------------------------------------------|--------------|------------|-------------|------------|------------|------------|-------------|
|                                                    | Weights      | MoM change |             |            | YoY change |            |             |
|                                                    |              | Jul-16     | Jun-17      | Jul-17     | Jul-16     | Jun-17     | Jul-17      |
| <b>I. Food Group</b>                               | <b>37.5</b>  | <b>2.5</b> | <b>-1.1</b> | <b>0.0</b> | <b>4.7</b> | <b>2.4</b> | <b>-0.1</b> |
| Food & Non-Alcoholic                               | 34.8         | 2.7        | -0.2        | 0.4        | 3.9        | 3.1        | 0.7         |
| Alcoholic Beverages & Tobacco                      | 1.4          | 1.1        | -15.3       | -5.5       | 17.7       | -10.0      | -15.9       |
| Restaurant & Hotels                                | 1.2          | 0.4        | 0.2         | 0.2        | 5.9        | 5.4        | 5.3         |
| <b>II. Non-Food Group</b>                          | <b>62.5</b>  | <b>0.5</b> | <b>0.1</b>  | <b>0.6</b> | <b>3.7</b> | <b>5.0</b> | <b>5.1</b>  |
| Clothing & Footwear                                | 7.6          | 0.2        | 0.5         | 0.3        | 4.6        | 3.8        | 3.9         |
| Housing, Water, Elect, Gas & other Fuels           | 29.4         | 0.9        | 0.0         | 1.1        | 5.1        | 5.1        | 5.3         |
| Furnishing & Household Equip. Maintenance etc      | 4.2          | 0.1        | 0.2         | 0.4        | 3.8        | 2.4        | 2.7         |
| Health                                             | 2.2          | 0.1        | 0.0         | 0.1        | 5.0        | 13.3       | 13.3        |
| Transport                                          | 7.2          | 0.3        | -0.3        | -0.4       | -4.9       | 3.9        | 3.2         |
| Communication                                      | 3.2          | 0.0        | 0.0         | 0.0        | 0.4        | 1.6        | 1.5         |
| Recreation & Culture                               | 2.0          | 0.0        | 0.0         | 0.0        | 1.4        | 0.2        | 0.2         |
| Education                                          | 3.9          | -0.2       | 0.0         | 0.1        | 7.1        | 11.0       | 11.4        |
| Miscellaneous                                      | 2.8          | 1.0        | 0.3         | 0.2        | 5.7        | 5.7        | 4.8         |
| <b>Headline</b>                                    | <b>100.0</b> | <b>1.3</b> | <b>-0.4</b> | <b>0.3</b> | <b>4.1</b> | <b>3.9</b> | <b>2.9</b>  |

| <b>Table A2: Distribution of Price changes (YoY) of CPI basket</b> |             |                                      |            |                                    |            |                                |            |                                          |           |                                     |           |
|--------------------------------------------------------------------|-------------|--------------------------------------|------------|------------------------------------|------------|--------------------------------|------------|------------------------------------------|-----------|-------------------------------------|-----------|
| Groups                                                             | % changes   | No. of items in each inflation range |            |                                    |            |                                |            |                                          |           |                                     |           |
|                                                                    |             | Total number of items                |            | Decrease or no change (0% or less) |            | Subdued increase (>0% but <5%) |            | Moderate increase (5% but less than 10%) |           | Double digit increase (10% or more) |           |
|                                                                    |             | Jul-16                               | Jul-17     | Jul-16                             | Jul-17     | Jul-16                         | Jul-17     | Jul-16                                   | Jul-17    | Jul-16                              | Jul-17    |
| <b>I. Food Group</b>                                               | <b>-0.1</b> | <b>127</b>                           | <b>128</b> | <b>28</b>                          | <b>46</b>  | <b>55</b>                      | <b>46</b>  | <b>15</b>                                | <b>22</b> | <b>29</b>                           | <b>14</b> |
| Food & Non-Alcoholic Beverages                                     | 0.7         | 115                                  | 116        | 28                                 | 43         | 53                             | 43         | 12                                       | 16        | 22                                  | 14        |
| Alcoholic Beverages & Tobacco                                      | -15.9       | 6                                    | 6          | 0                                  | 3          | 0                              | 2          | 0                                        | 1         | 6                                   | 0         |
| Restaurant & Hotels                                                | 5.3         | 6                                    | 6          | 0                                  | 0          | 2                              | 1          | 3                                        | 5         | 1                                   | 0         |
| <b>II. Non-Food Group</b>                                          | <b>5.1</b>  | <b>348</b>                           | <b>348</b> | <b>101</b>                         | <b>76</b>  | <b>143</b>                     | <b>183</b> | <b>84</b>                                | <b>70</b> | <b>20</b>                           | <b>19</b> |
| Clothing & Footwear                                                | 3.9         | 59                                   | 59         | 6                                  | 8          | 29                             | 35         | 23                                       | 16        | 1                                   | 0         |
| Housing, Water, Elect, Gas & other Fuels                           | 5.3         | 36                                   | 36         | 8                                  | 11         | 9                              | 12         | 15                                       | 12        | 4                                   | 1         |
| Furnishing & Household Equip. Maintenance etc                      | 2.7         | 69                                   | 69         | 4                                  | 4          | 50                             | 54         | 15                                       | 11        | 0                                   | 0         |
| Health                                                             | 13.3        | 39                                   | 39         | 16                                 | 5          | 15                             | 20         | 5                                        | 8         | 3                                   | 6         |
| Transport                                                          | 3.2         | 43                                   | 43         | 30                                 | 25         | 8                              | 12         | 4                                        | 4         | 1                                   | 2         |
| Communication                                                      | 1.5         | 12                                   | 12         | 5                                  | 3          | 4                              | 4          | 2                                        | 3         | 1                                   | 2         |
| Recreation & Culture                                               | 0.2         | 39                                   | 39         | 23                                 | 17         | 11                             | 17         | 2                                        | 4         | 3                                   | 1         |
| Education                                                          | 11.4        | 16                                   | 16         | 6                                  | 1          | 2                              | 5          | 7                                        | 5         | 1                                   | 5         |
| Miscellaneous                                                      | 4.8         | 35                                   | 35         | 3                                  | 2          | 15                             | 24         | 11                                       | 7         | 6                                   | 2         |
| <b>Overall</b>                                                     | <b>2.9</b>  | <b>475</b>                           | <b>476</b> | <b>129</b>                         | <b>122</b> | <b>198</b>                     | <b>229</b> | <b>99</b>                                | <b>92</b> | <b>49</b>                           | <b>33</b> |

Note: Prices of 11 seasonal items were not reported during the month.

| Table A3: Top and Bottom 15 Contributors to CPI Inflation (YoY) in July 2017 |                           |        |            |        |                       |
|------------------------------------------------------------------------------|---------------------------|--------|------------|--------|-----------------------|
| Top 15 Contributors                                                          |                           |        | YoY Change |        | Weighted Contribution |
| Items/ Contributors                                                          | Weights                   | Jul-16 | Jul-17     |        |                       |
| Ranked by Weighted Contribution                                              |                           |        |            |        |                       |
| 1                                                                            | House Rent                | 21.81  | 5.79       | 7.19   | 45.88                 |
| 2                                                                            | Education                 | 3.94   | 7.13       | 11.36  | 16.42                 |
| 3                                                                            | Fresh Fruits              | 6.68   | 4.22       | 3.81   | 11.06                 |
| 4                                                                            | Milk Fresh                | 1.86   | -1.26      | 9.29   | 7.37                  |
| 5                                                                            | Meat                      | 1.27   | 3.24       | 20.39  | 6.50                  |
| 6                                                                            | Drug Medicine             | 2.43   | 4.96       | 6.07   | 6.34                  |
| 7                                                                            | Motor Fuel                | 1.58   | -9.22      | 13.30  | 5.45                  |
| 8                                                                            | Rice                      | 0.84   | 8.59       | 14.35  | 5.02                  |
| 9                                                                            | Tea                       | 3.03   | -12.15     | 7.42   | 4.99                  |
| 10                                                                           | Potatoes                  | 0.88   | 7.16       | 8.21   | 3.54                  |
| 11                                                                           | Tailoring                 | 1.49   | 4.04       | 5.77   | 3.04                  |
| 12                                                                           | Fresh Vegetables          | 1.23   | 5.88       | 5.32   | 2.83                  |
| 13                                                                           | Personal Care             | 0.47   | 32.11      | 12.24  | 2.19                  |
| 14                                                                           | Ready Made Food           | 1.73   | 5.34       | 3.31   | 2.11                  |
| 15                                                                           | Personal Equipments       | 2.07   | -2.72      | 4.28   | 1.99                  |
| Total                                                                        |                           | 51.32  |            |        | 124.74                |
| Bottom 15 Contributors                                                       |                           |        |            |        |                       |
| 1                                                                            | Cigarettes                | 1.39   | 17.75      | -16.14 | -13.48                |
| 2                                                                            | Sugar                     | 1.68   | 36.84      | -10.76 | -8.70                 |
| 3                                                                            | Pulse Mash (Washed)       | 0.44   | 58.41      | -45.10 | -7.66                 |
| 4                                                                            | Chicken                   | 1.04   | 2.38       | -15.80 | -6.43                 |
| 5                                                                            | Onion                     | 0.21   | 47.13      | -24.96 | -3.20                 |
| 6                                                                            | Pulse Moong               | 4.16   | -0.08      | -2.07  | -2.94                 |
| 7                                                                            | Pulse Masoor              | 0.24   | 45.81      | -16.15 | -2.10                 |
| 8                                                                            | Pulse Gram                | 0.23   | -2.96      | -18.01 | -2.05                 |
| 9                                                                            | Besan                     | 0.27   | 9.38       | -16.37 | -1.55                 |
| 10                                                                           | Wheat Flour               | 0.53   | -23.35     | -7.03  | -1.20                 |
| 11                                                                           | Spices                    | 0.15   | 42.19      | -12.04 | -0.95                 |
| 12                                                                           | Text Books                | 0.54   | 1.79       | -2.19  | -0.47                 |
| 13                                                                           | Motor Vehicle Accessories | 0.57   | 0.62       | -1.51  | -0.41                 |
| 14                                                                           | Sewing Needle & Dry Cell  | 0.16   | 49.77      | -3.51  | -0.28                 |
| 15                                                                           | Milk Powder               | 0.30   | 3.52       | -2.14  | -0.23                 |
| Total                                                                        |                           | 11.93  |            |        | -51.65                |

**Table A3.1: Top and Bottom 15 Contributors to CPI Inflation (MoM) in July 2017**

| <u>Top 15 Contributors</u>      |                        | <u>MoM Change</u> |        | Weighted Contribution |         |
|---------------------------------|------------------------|-------------------|--------|-----------------------|---------|
| Items/ Contributors             | Weights                | Jun-17            | Jul-17 |                       |         |
| Ranked by Weighted Contribution |                        |                   |        |                       |         |
| 1                               | Potatoes               | 21.81             | 0.00   | 1.49                  | 82.84   |
| 2                               | Meat                   | 1.68              | -3.18  | 9.31                  | 50.79   |
| 3                               | Tailoring              | 6.68              | 0.00   | 0.73                  | 18.05   |
| 4                               | Tomatoes               | 1.36              | -5.03  | 4.34                  | 14.53   |
| 5                               | Eggs                   | 0.53              | -7.17  | 9.99                  | 11.92   |
| 6                               | Beverages              | 0.47              | 8.25   | 4.18                  | 6.65    |
| 7                               | Cotton Cloth           | 0.46              | 4.46   | 3.75                  | 4.30    |
| 8                               | Ready Made Garments    | 1.73              | 0.48   | 0.46                  | 2.50    |
| 9                               | Fresh Fruits           | 1.58              | 0.17   | 0.63                  | 2.42    |
| 10                              | Personal Equipments    | 0.56              | 0.25   | 1.17                  | 2.23    |
| 11                              | Personal Care          | 1.04              | 0.00   | 0.56                  | 2.02    |
| 12                              | Household Textile      | 2.43              | 1.24   | 0.21                  | 1.90    |
| 13                              | Ready Made Food        | 0.84              | 0.19   | 0.50                  | 1.63    |
| 14                              | Rice                   | 0.63              | 0.28   | 0.72                  | 1.62    |
| 15                              | Bakery & Confectionary | 3.94              | 0.01   | 0.11                  | 1.49    |
| Total                           |                        | 45.76             |        |                       | 204.89  |
| <u>Bottom 15 Contributors</u>   |                        |                   |        |                       |         |
| 1                               | Cigarettes             | 1.86              | 0.25   | -6.67                 | -51.21  |
| 2                               | Fresh Vegetables       | 1.39              | -15.49 | -5.61                 | -34.35  |
| 3                               | Chicken                | 4.16              | -0.59  | -1.05                 | -12.21  |
| 4                               | Sugar                  | 3.03              | -1.01  | -1.24                 | -7.49   |
| 5                               | Onion                  | 1.04              | -3.37  | -1.98                 | -5.70   |
| 6                               | Wheat Flour            | 0.24              | -1.62  | -2.82                 | -2.61   |
| 7                               | Motor Fuel             | 0.44              | 9.40   | -2.43                 | -1.92   |
| 8                               | Besan                  | 1.20              | 1.15   | -0.46                 | -1.70   |
| 9                               | Pulse Gram             | 0.30              | 0.44   | -1.71                 | -1.49   |
| 10                              | Pulse Masoor           | 0.21              | -0.15  | -1.06                 | -0.85   |
| 11                              | Dry Fruits             | 0.35              | 0.01   | -0.74                 | -0.67   |
| 12                              | Pulse Moong            | 0.86              | 0.00   | -0.41                 | -0.62   |
| 13                              | Spices                 | 0.15              | -4.02  | -0.64                 | -0.37   |
| 14                              | Cooking Oil            | 3.15              | 0.02   | -0.02                 | -0.13   |
| 15                              | Wheat Product          | 0.27              | -1.35  | -0.10                 | -0.06   |
| Total                           |                        | 18.66             |        |                       | -121.38 |

| Table A3.2: Top Fifteen Contributors to CPI Inflation (YoY) in July 2017                                                                                                                       |                           |         |            |        |                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------|------------|--------|-----------------------|
| Items/ Contributors                                                                                                                                                                            |                           | Weights | YoY Change |        | Weighted Contribution |
|                                                                                                                                                                                                |                           |         | Jul-16     | Jul-17 |                       |
| A. Ranked by Percentage Change                                                                                                                                                                 |                           |         |            |        |                       |
| 1                                                                                                                                                                                              | Potatoes                  | 1.27    | 3.24       | 20.39  | 6.50                  |
| 2                                                                                                                                                                                              | Drug Medicine             | 0.84    | 8.59       | 14.35  | 5.02                  |
| 3                                                                                                                                                                                              | Fresh Fruits              | 1.58    | -9.22      | 13.30  | 5.45                  |
| 4                                                                                                                                                                                              | Rice                      | 0.47    | 32.11      | 12.24  | 2.19                  |
| 5                                                                                                                                                                                              | Eggs                      | 3.94    | 7.13       | 11.36  | 16.42                 |
| 6                                                                                                                                                                                              | Tea                       | 1.86    | -1.26      | 9.29   | 7.37                  |
| 7                                                                                                                                                                                              | Education                 | 0.46    | 2.22       | 8.35   | 1.11                  |
| 8                                                                                                                                                                                              | Motor Fuel                | 0.88    | 7.16       | 8.21   | 3.54                  |
| 9                                                                                                                                                                                              | Tailoring                 | 0.59    | 7.25       | 7.87   | 1.98                  |
| 10                                                                                                                                                                                             | Tomatoes                  | 0.01    | 3.49       | 7.54   | 0.02                  |
| 11                                                                                                                                                                                             | Doctor (Mbbs) Clinic Fee  | 3.03    | -12.15     | 7.42   | 4.99                  |
| 12                                                                                                                                                                                             | Honey                     | 21.81   | 5.79       | 7.19   | 45.88                 |
| 13                                                                                                                                                                                             | Medical Equipments        | 0.21    | 6.30       | 6.90   | 0.60                  |
| 14                                                                                                                                                                                             | House Rent                | 0.04    | 2.12       | 6.62   | 0.15                  |
| 15                                                                                                                                                                                             | Personal Equipments       | 2.43    | 4.96       | 6.07   | 6.34                  |
| Total                                                                                                                                                                                          |                           | 39.43   |            |        | 107.58                |
| B. Ranked by Weights                                                                                                                                                                           |                           |         |            |        |                       |
| 1                                                                                                                                                                                              | House Rent                | 21.81   | 5.79       | 7.19   | 45.88                 |
| 2                                                                                                                                                                                              | Milk Fresh                | 6.68    | 4.22       | 3.81   | 11.06                 |
| 3                                                                                                                                                                                              | Electricity               | 4.40    | 1.45       | 0.00   | 0.00                  |
| 4                                                                                                                                                                                              | Wheat Flour               | 4.16    | -0.08      | -2.07  | -2.94                 |
| 5                                                                                                                                                                                              | Education                 | 3.94    | 7.13       | 11.36  | 16.42                 |
| 6                                                                                                                                                                                              | Communication & Apparatus | 3.15    | 0.25       | 1.42   | 0.94                  |
| 7                                                                                                                                                                                              | Motor Fuel                | 3.03    | -12.15     | 7.42   | 4.99                  |
| 8                                                                                                                                                                                              | Transport Services        | 2.70    | -2.13      | 0.23   | 0.19                  |
| 9                                                                                                                                                                                              | Meat                      | 2.43    | 4.96       | 6.07   | 6.34                  |
| 10                                                                                                                                                                                             | Vegetable Ghee            | 2.07    | -2.72      | 4.28   | 1.99                  |
| 11                                                                                                                                                                                             | Fresh Fruits              | 1.86    | -1.26      | 9.29   | 7.37                  |
| 12                                                                                                                                                                                             | Cooking Oil               | 1.75    | -5.97      | 3.47   | 1.33                  |
| 13                                                                                                                                                                                             | Cotton Cloth              | 1.73    | 5.34       | 3.31   | 2.11                  |
| 14                                                                                                                                                                                             | Fresh Vegetables          | 1.68    | 36.84      | -10.76 | -8.70                 |
| 15                                                                                                                                                                                             | Rice                      | 1.58    | -9.22      | 13.30  | 5.45                  |
| Total                                                                                                                                                                                          |                           | 63.00   |            |        | 92.43                 |
| Note: Weighted contribution is estimated by multiplying the weights by the price change of an item; this is then reported as a share in YoY change in CPI, which is 2.9 percent in July, 2017. |                           |         |            |        |                       |

**Table A3.3: Top Ten Contributors to CPI Food Inflation (YoY) in July 2017**

| Table 1: Top 10 Contributors to CPI Food Inflation (2017, in July 2017)                                                                                                                              |                  |         |            |        |                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------|------------|--------|-----------------------|
| Items/ Contributors                                                                                                                                                                                  |                  | Weights | YoY Change |        | Weighted Contribution |
|                                                                                                                                                                                                      |                  |         | Jul-16     | Jul-17 |                       |
| A. Ranked by Weighted Contribution                                                                                                                                                                   |                  |         |            |        |                       |
| 1                                                                                                                                                                                                    | Fresh Fruits     | 6.68    | 4.22       | 3.81   | 11.06                 |
| 2                                                                                                                                                                                                    | Milk Fresh       | 1.86    | -1.26      | 9.29   | 7.37                  |
| 3                                                                                                                                                                                                    | Meat             | 2.43    | 4.96       | 6.07   | 6.34                  |
| 4                                                                                                                                                                                                    | Rice             | 1.58    | -9.22      | 13.30  | 5.45                  |
| 5                                                                                                                                                                                                    | Tea              | 0.84    | 8.59       | 14.35  | 5.02                  |
| 6                                                                                                                                                                                                    | Potatoes         | 1.23    | 5.88       | 5.32   | 2.83                  |
| 7                                                                                                                                                                                                    | Fresh Vegetables | 0.47    | 32.11      | 12.24  | 2.19                  |
| 8                                                                                                                                                                                                    | Ready Made Food  | 2.07    | -2.72      | 4.28   | 1.99                  |
| 9                                                                                                                                                                                                    | Vegetable Ghee   | 1.75    | -5.97      | 3.47   | 1.33                  |
| 10                                                                                                                                                                                                   | Eggs             | 1.36    | -18.91     | 3.04   | 1.25                  |
| Total                                                                                                                                                                                                |                  | 20.28   |            |        | 44.84                 |
| B. Ranked by Percentage Change                                                                                                                                                                       |                  |         |            |        |                       |
| 1                                                                                                                                                                                                    | Potatoes         | 0.84    | 8.59       | 14.35  | 5.02                  |
| 2                                                                                                                                                                                                    | Fresh Fruits     | 1.58    | -9.22      | 13.30  | 5.45                  |
| 3                                                                                                                                                                                                    | Rice             | 0.47    | 32.11      | 12.24  | 2.19                  |
| 4                                                                                                                                                                                                    | Eggs             | 1.86    | -1.26      | 9.29   | 7.37                  |
| 5                                                                                                                                                                                                    | Tea              | 0.46    | 2.22       | 8.35   | 1.11                  |
| 6                                                                                                                                                                                                    | Tomatoes         | 0.04    | 2.12       | 6.62   | 0.15                  |
| 7                                                                                                                                                                                                    | Honey            | 2.43    | 4.96       | 6.07   | 6.34                  |
| 8                                                                                                                                                                                                    | Meat             | 1.23    | 5.88       | 5.32   | 2.83                  |
| 9                                                                                                                                                                                                    | Ready Made Food  | 2.07    | -2.72      | 4.28   | 1.99                  |
| 10                                                                                                                                                                                                   | Gram Whole       | 0.25    | 2.77       | 3.89   | 0.38                  |
| Total                                                                                                                                                                                                |                  | 11.23   |            |        | 32.84                 |
| C. Ranked by Weights                                                                                                                                                                                 |                  |         |            |        |                       |
| 1                                                                                                                                                                                                    | Milk Fresh       | 6.68    | 4.22       | 3.81   | 11.06                 |
| 2                                                                                                                                                                                                    | Wheat Flour      | 4.16    | -0.08      | -2.07  | -2.94                 |
| 3                                                                                                                                                                                                    | Meat             | 2.43    | 4.96       | 6.07   | 6.34                  |
| 4                                                                                                                                                                                                    | Vegetable Ghee   | 2.07    | -2.72      | 4.28   | 1.99                  |
| 5                                                                                                                                                                                                    | Fresh Fruits     | 1.86    | -1.26      | 9.29   | 7.37                  |
| 6                                                                                                                                                                                                    | Cooking Oil      | 1.75    | -5.97      | 3.47   | 1.33                  |
| 7                                                                                                                                                                                                    | Fresh Vegetables | 1.68    | 36.84      | -10.76 | -8.70                 |
| 8                                                                                                                                                                                                    | Rice             | 1.58    | -9.22      | 13.30  | 5.45                  |
| 9                                                                                                                                                                                                    | Cigarettes       | 1.39    | 17.75      | -16.14 | -13.48                |
| 10                                                                                                                                                                                                   | Chicken          | 1.36    | -18.91     | 3.04   | 1.25                  |
| Total                                                                                                                                                                                                |                  | 24.98   |            |        | 9.67                  |
| Note: Weighted contribution is estimated by multiplying the weights by the price change of an item; this is then reported as a share in YoY change in CPI Food, which is -0.1 percent in July, 2017. |                  |         |            |        |                       |

| Table A3.4: Top Ten Contributors to CPI Non-food Inflation (YoY) in July 2017                                                                                                                           |                           |         |            |        |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------|------------|--------|-----------------------|
| Items/ Contributors                                                                                                                                                                                     |                           | Weights | YoY Change |        | Weighted Contribution |
|                                                                                                                                                                                                         |                           |         | Jul-16     | Jul-17 |                       |
| A. Ranked by Weighted Contribution                                                                                                                                                                      |                           |         |            |        |                       |
| 1                                                                                                                                                                                                       | House Rent                | 21.81   | 5.79       | 7.19   | 45.88                 |
| 2                                                                                                                                                                                                       | Education                 | 3.94    | 7.13       | 11.36  | 16.42                 |
| 3                                                                                                                                                                                                       | Drug Medicine             | 1.27    | 3.24       | 20.39  | 6.50                  |
| 4                                                                                                                                                                                                       | Motor Fuel                | 3.03    | -12.15     | 7.42   | 4.99                  |
| 5                                                                                                                                                                                                       | Tailoring                 | 0.88    | 7.16       | 8.21   | 3.54                  |
| 6                                                                                                                                                                                                       | Personal Care             | 1.49    | 4.04       | 5.77   | 3.04                  |
| 7                                                                                                                                                                                                       | Personal Equipments       | 1.73    | 5.34       | 3.31   | 2.11                  |
| 8                                                                                                                                                                                                       | Doctor (Mbbs) Clinic Fee  | 0.59    | 7.25       | 7.87   | 1.98                  |
| 9                                                                                                                                                                                                       | Cotton Cloth              | 0.84    | 8.29       | 4.37   | 1.75                  |
| 10                                                                                                                                                                                                      | Woolen Cloth              | 0.88    | 4.22       | 4.89   | 1.71                  |
| Total                                                                                                                                                                                                   |                           | 36.47   |            |        | 87.92                 |
| B. Ranked by Percentage Change                                                                                                                                                                          |                           |         |            |        |                       |
| 1                                                                                                                                                                                                       | Drug Medicine             | 1.27    | 3.24       | 20.39  | 6.50                  |
| 2                                                                                                                                                                                                       | Education                 | 3.94    | 7.13       | 11.36  | 16.42                 |
| 3                                                                                                                                                                                                       | Motor Fuel                | 0.88    | 7.16       | 8.21   | 3.54                  |
| 4                                                                                                                                                                                                       | Tailoring                 | 0.59    | 7.25       | 7.87   | 1.98                  |
| 5                                                                                                                                                                                                       | Doctor (Mbbs) Clinic Fee  | 0.01    | 3.49       | 7.54   | 0.02                  |
| 6                                                                                                                                                                                                       | Medical Equipments        | 3.03    | -12.15     | 7.42   | 4.99                  |
| 7                                                                                                                                                                                                       | House Rent                | 21.81   | 5.79       | 7.19   | 45.88                 |
| 8                                                                                                                                                                                                       | Personal Equipments       | 0.21    | 6.30       | 6.90   | 0.60                  |
| 9                                                                                                                                                                                                       | Cleaning & Laundering     | 1.49    | 4.04       | 5.77   | 3.04                  |
| 10                                                                                                                                                                                                      | Motor Vehicle             | 0.33    | 6.88       | 5.50   | 0.69                  |
| Total                                                                                                                                                                                                   |                           | 33.57   |            |        | 83.67                 |
| C. Ranked by Weights                                                                                                                                                                                    |                           |         |            |        |                       |
| 1                                                                                                                                                                                                       | House Rent                | 21.81   | 5.79       | 7.19   | 45.88                 |
| 2                                                                                                                                                                                                       | Electricity               | 4.40    | 1.45       | 0.00   | 0.00                  |
| 3                                                                                                                                                                                                       | Education                 | 3.94    | 7.13       | 11.36  | 16.42                 |
| 4                                                                                                                                                                                                       | Communication & Apparatus | 3.15    | 0.25       | 1.42   | 0.94                  |
| 5                                                                                                                                                                                                       | Motor Fuel                | 3.03    | -12.15     | 7.42   | 4.99                  |
| 6                                                                                                                                                                                                       | Transport Services        | 2.70    | -2.13      | 0.23   | 0.19                  |
| 7                                                                                                                                                                                                       | Cotton Cloth              | 1.73    | 5.34       | 3.31   | 2.11                  |
| 8                                                                                                                                                                                                       | Gas                       | 1.58    | 9.92       | 0.00   | 0.00                  |
| 9                                                                                                                                                                                                       | Footware                  | 1.55    | 1.01       | 0.59   | 0.25                  |
| 10                                                                                                                                                                                                      | Personal Care             | 1.49    | 4.04       | 5.77   | 3.04                  |
| Total                                                                                                                                                                                                   |                           | 45.39   |            |        | 73.83                 |
| Note: Weighted contribution is estimated by multiplying the weights by the price change of an item; this is then reported as a share in YoY change in CPI Non-food, which is 5.1 percent in July, 2017. |                           |         |            |        |                       |

**Table A4: Distribution of Price Changes (YoY) - Selected CPI Items: July 2017**

| Groups                                        | Decrease or no change                                                                                                                      | Subdued increase (Greater than 0% but less than 5%)                                                                                                       | Moderate increase (5% but less than 10%)                                                                                                            | Double digit increase (10% or more)                                                                                                                                      |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Food & Non-Alcoholic Beverages                | Tomatoes, Bottlegourd, Pulse Mash (Washed), Lady Finger, Arvi, Pulse Moong (Washed), Garlic.                                               | Ice Cream Walls, Cooking Oil (Pakwan), Sweetmeat (Mixed), Patties (Vegetables), Biscuits- Packed, Mustard Oil Av.Qlty.                                    | Groundnuts (With Shell), Eggs Farm, Tea Loose Kenya Av.Qlty 250 Gm, Rice Irri-6/9 (Sindh/Punj), Mutton Av.Qlty.                                     | Muskmelon (Kharboosa), Tea Lipton Yellow Label 200 Gm, Apple, Ginger, Lemon, Rice Basmati Broken Av.Ql, Rice Basmati 385/386, Potatoes, Sweetmelon (Garma).              |
| Alcoholic Beverages & Tobacco                 | Cigarettes Capstan 20,S, Cigarettes Morven Gold 20,S, Cigarettes K-20,S.                                                                   | Cigarettes Gold Leaf 20,S, Betel Leaves.                                                                                                                  | Betel Nuts.                                                                                                                                         |                                                                                                                                                                          |
| Clothing & Footwear                           | Sewing Thread/Reel, Gents Shoe, Art 1109 Servis, Child Shoe Power Lite Bata, Sports Shoes, Ladies Spoung Chappal Bata, Ladies Sandal Bata. | Awami-Suit W&W (Gents)Av.Qlty, Lungi/Dhoti(Cotton) Avg.Qlty, Pullover Gents Oxford/Bon, Tropical Suiting Law.Pur.                                         | Dry Cleaning Suit Coat Pant, Heavy Wt Suiting Law.Pur Av. Qlty, Tailoring Suit (Female), Tailoring Charges Pant (Men), Tailoring Awami-Suit (Male). |                                                                                                                                                                          |
| Housing, Water, Elect, Gas & other Fuels      | Elect.Charges Upto 50 Units, Elect.Charges 01 - 100 Units, Elect.Charges Above 1000 Units, Elect.Charges 301 - 1000 Units.                 | Electrician Wage Rate(P/Pnt), Sand (Black Pit Sand), Timber Shesham Log, Plumber Wage Rate, Electrician Wage Rate(P/Day), Cement (Local), Firewood Whole. | Unskilled Labour Wage Rat, Cement Blocks (6"X8"X12"), House Rent For Q-Iv, House Rent For Q-Ii, House Rent For Q-V, House Rent (Combined).          | Iron Bar (M.S. Bar) 1/2".                                                                                                                                                |
| Furnishing & Household Equip. Maintenance etc | Washing Powder 1000 Grm (Express), Dari Cotton (6'X2 1/2"), Match Box (Small), Sewing Machine Needle (Singer).                             | Boot Polish Liquid (Cherry), Toilet Paper Roll (R.Petal), Pedestal Fan 22" Super Qlty, Blanket (90" X 54"), Water Set Jug+6 Glasses.                      | Boot Polish Cherry/Kiwi 50 Ml, Chair Shesham Wood, Sewing Machine (Singer), Robin Blue (35 Gms), Tea Set Pak. China Wear 21 Pcs.                    |                                                                                                                                                                          |
| Health                                        | Saniplast (1 Putty), Galxos-D (450 Gm), Betnesol Eye Drops, Sancos Syrup (50 ML), Ventolin Tab. 2Mg.                                       | Blood Test (Cp) Charges, Sugar Test (Random/Fasting), Glycrine Small Bottle, Disprin Tab., Brufen Tabs 200-Mg., Panadol Tab. Extra/Plain.                 | Cotton Bandage 2" - 4", Doctor (Mbbs) Clinic Fee, Ear Drops (Cardisporine), Hydryllin Syrup 120 ML, O.R.S. (Nimcol).                                | Burnol Cream 30 Gm, Lederplex Syrup, Dettol (Medium), Entox Tab., Jouhar Joshanda, Septran Tablets.                                                                      |
| Transport                                     | Tyre Motor Cycle Without Tube, Tyre Car With Tube General, Tyre Cycle, Plateform Ticket, Bus Fare Outside City (Non A/C).                  | Cng, Cycle Overhauling Charges, Motor Cycle Service Charges, Car Toyota 1300 Cc, Tyre Puncture Charges, Auto Rickshaw Fare.                               | High Speed Diesel Hsd, Car Suzuki 1000 Cc, Gas Cylinder S.Size (L.P.G), Car Suzuki 800 Cc (W/O. Ac).                                                | Petrol Super, Car Honda Civic 1500 Cc.                                                                                                                                   |
| Communication                                 | Postal Envelope Domestic, Telephone Charges Local Call, Telephone Charges Outside City.                                                    | Mobile Cell Charges, Postal Envelope For Saudi Arabia, Mobile Set Nokia/Sony/Ericsson Av.Qlty.                                                            | T.C.S. Ch. Min.Within Zone, Postal Registration Charges, Fax Charges (Local).                                                                       | Internet Charges, Telephone Set Av. Qlty.                                                                                                                                |
| Recreation & Culture                          | Urdu Book Class Ix/X (T.B.Board), Urdu Book Class V (T.B.Board), English Book Class V1, Maths Book Class Ix Or X, Cable Charges.           | Cinema A/C High Class, Daily "Dawn", Fountain Pen Hero/Wings/China, Pen Ink Dollor 57 Ml Bottle, T.V 20" Color China/Koria, Personnel Computer (Branded). | Ball Pen (Local), Daily "Jang", Pencil Goldfish/Deer, Daily "Nawa-E-Waqt".                                                                          | Cinema Non-A/C High Class                                                                                                                                                |
| Education                                     | Mba Tuition Fee.                                                                                                                           | Coaching Fee For Class Ix/ X, Pvt Med.College Fee Mbbs(1st Year).                                                                                         | Pvt School Fee Eng.Med (Class-X), Coaching Charges For Class Xi/ Xii Science Group.                                                                 | Govt. University Fee Msc/ Ma, Govt. Engg. Coll. Fee 1st Year, Govt. Med. College Fee Mbbs 1st Year, Pvt School Fee Eng.Med (Class-Vi), Pvt School Fee Eng.Med (Class-V). |
| Restaurant & Hotels                           |                                                                                                                                            | Bread Tandoori St. Size.                                                                                                                                  | Chicken Biryani Full/Double, Cooked Dal (Av. Hotel), Cooked Beef (Av. Hotel).                                                                       |                                                                                                                                                                          |
| Miscellaneous                                 | Gold Tezabi 24 Ct, Shampoo Sunsilk/Pantene 100 ML.                                                                                         | Wrist Watch Gents Citizen, Gel Medium Size, Wrist Watch Ladies Citizen, Hair Removing Cream (Eu-Cream).                                                   | Toothpowder Dentonic 90 Gms, Suitcase Rixin (24"X16"X6"), Shaving Charges.                                                                          | Toilet Soap Lifebouy 140 Gms, Artificial Jewellery Set.                                                                                                                  |

Table A5: City- wise CPI Inflation by Income Groups, July 2017

|              | Up to Rs: 8000 |      |      |      |          |      | Rs 8001- 12000 |      |      |      |          |      |
|--------------|----------------|------|------|------|----------|------|----------------|------|------|------|----------|------|
|              | General        |      | Food |      | Non-Food |      | General        |      | Food |      | Non-Food |      |
|              | MoM            | YoY  | MoM  | YoY  | MoM      | YoY  | MoM            | YoY  | MoM  | YoY  | MoM      | YoY  |
| 1 Rawalpindi | 0.2            | 0.9  | 0.2  | -2.6 | 0.2      | 5.1  | 0.2            | 1.5  | 0.3  | -2.4 | 0.2      | 5.6  |
| 2 Islamabad  | 0.6            | 2.0  | 0.4  | -1.7 | 0.9      | 6.5  | 0.6            | 2.8  | 0.3  | -2.0 | 0.9      | 8.2  |
| 3 Lahore     | 0.7            | 1.7  | 1.1  | -0.7 | 0.1      | 5.2  | 0.7            | 2.4  | 1.1  | -0.3 | 0.2      | 5.8  |
| 4 Gujranwala | 0.5            | -0.5 | 0.9  | -3.1 | 0.0      | 2.8  | 0.4            | -0.2 | 0.7  | -2.7 | 0.1      | 2.7  |
| 5 Sialkot    | 1.8            | 0.6  | 1.2  | -5.3 | 2.6      | 8.6  | 1.8            | 1.8  | 1.1  | -4.5 | 2.6      | 9.4  |
| 6 Faisalabad | 1.5            | 2.6  | 1.0  | -0.2 | 2.1      | 6.2  | 1.6            | 3.0  | 0.7  | -0.4 | 2.7      | 6.8  |
| 7 Multan     | 0.0            | -0.7 | -0.1 | -1.5 | 0.1      | 0.3  | 0.1            | -0.1 | 0.0  | -0.9 | 0.1      | 0.8  |
| 8 Sargodha   | 1.0            | 0.6  | 1.4  | -2.4 | 0.6      | 4.1  | 1.0            | 1.2  | 1.4  | -1.6 | 0.6      | 4.1  |
| 9 Bahawalpur | 1.0            | 1.6  | 1.5  | -2.7 | 0.5      | 6.4  | 0.8            | 3.0  | 1.2  | -2.1 | 0.5      | 8.0  |
| 10 Karachi   | 0.1            | 0.4  | 0.0  | -1.8 | 0.2      | 3.2  | 0.0            | 0.5  | -0.1 | -1.3 | 0.2      | 2.6  |
| 11 Hyderabad | 1.0            | 3.3  | 0.9  | 2.5  | 1.1      | 4.3  | 0.9            | 3.1  | 0.7  | 2.6  | 1.1      | 3.7  |
| 12 Sukkur    | -0.6           | 1.4  | -1.1 | 0.1  | 0.0      | 2.9  | -0.4           | 1.9  | -0.9 | 0.4  | 0.1      | 3.6  |
| 13 Larkana   | 0.8            | 4.1  | 1.4  | 1.1  | 0.2      | 7.6  | 0.7            | 6.8  | 1.3  | 1.5  | 0.2      | 12.4 |
| 14 Peshawar  | 0.3            | -0.6 | -0.1 | -4.0 | 0.8      | 3.5  | 0.3            | 0.0  | -0.1 | -3.9 | 0.7      | 3.9  |
| 15 Bannu     | 0.5            | 0.9  | 0.1  | -3.1 | 0.9      | 5.6  | 0.6            | 2.4  | 0.3  | -2.0 | 0.9      | 7.1  |
| 16 Quetta    | 1.2            | 1.3  | 1.3  | -1.9 | 1.1      | 5.5  | 1.0            | 1.7  | 1.1  | -1.4 | 0.9      | 5.2  |
| 17 Khuzdar   | -2.3           | 5.6  | -4.1 | 4.0  | -0.1     | 7.5  | -2.4           | 5.8  | -4.1 | 3.9  | -0.6     | 7.9  |
|              | Rs 12001-18000 |      |      |      |          |      | Rs 18001-35000 |      |      |      |          |      |
|              | General        |      | Food |      | Non-Food |      | General        |      | Food |      | Non-Food |      |
|              | MoM            | YoY  | MoM  | YoY  | MoM      | YoY  | MoM            | YoY  | MoM  | YoY  | MoM      | YoY  |
| 1 Rawalpindi | 0.3            | 1.1  | 0.4  | -2.6 | 0.2      | 4.6  | 0.3            | 1.2  | 0.5  | -3.0 | 0.2      | 4.6  |
| 2 Islamabad  | 0.6            | 2.7  | 0.3  | -1.8 | 0.9      | 7.2  | 0.7            | 3.1  | 0.4  | -2.0 | 0.9      | 7.5  |
| 3 Lahore     | 0.7            | 2.8  | 1.0  | 0.0  | 0.2      | 6.0  | 0.6            | 3.3  | 1.0  | 0.3  | 0.2      | 6.2  |
| 4 Gujranwala | 0.3            | 0.3  | 0.6  | -2.2 | 0.1      | 2.9  | 0.1            | 0.8  | 0.3  | -1.6 | 0.0      | 2.8  |
| 5 Sialkot    | 1.9            | 2.1  | 1.1  | -3.8 | 2.6      | 8.4  | 1.8            | 2.3  | 1.1  | -3.8 | 2.3      | 7.8  |
| 6 Faisalabad | 1.8            | 3.4  | 0.5  | -0.5 | 3.1      | 7.6  | 1.8            | 4.1  | 0.1  | -0.8 | 3.3      | 8.7  |
| 7 Multan     | 0.1            | 0.5  | 0.0  | -0.5 | 0.1      | 1.5  | 0.1            | 1.0  | 0.2  | -0.1 | 0.1      | 1.9  |
| 8 Sargodha   | 0.9            | 2.4  | 1.2  | -1.5 | 0.6      | 6.0  | 0.9            | 3.6  | 1.4  | -1.1 | 0.5      | 7.3  |
| 9 Bahawalpur | 0.9            | 3.1  | 1.4  | -2.1 | 0.5      | 7.8  | 0.7            | 4.9  | 1.0  | -2.0 | 0.5      | 10.4 |
| 10 Karachi   | 0.0            | 0.4  | -0.2 | -1.3 | 0.1      | 2.2  | 0.0            | 0.6  | -0.2 | -1.1 | 0.1      | 2.2  |
| 11 Hyderabad | 0.8            | 3.5  | 0.5  | 2.6  | 1.1      | 4.5  | 0.7            | 3.7  | 0.4  | 2.6  | 1.0      | 4.7  |
| 12 Sukkur    | -0.3           | 2.5  | -1.0 | 0.4  | 0.4      | 4.6  | -0.2           | 3.0  | -1.0 | 1.1  | 0.4      | 4.6  |
| 13 Larkana   | 0.5            | 8.9  | 0.9  | 1.7  | 0.2      | 15.8 | 0.4            | 9.2  | 0.8  | 2.5  | 0.2      | 14.9 |
| 14 Peshawar  | 0.3            | 0.4  | -0.2 | -4.1 | 0.8      | 4.7  | 0.4            | 0.9  | 0.0  | -3.7 | 0.7      | 4.6  |
| 15 Bannu     | 0.6            | 2.0  | 0.2  | -2.6 | 1.0      | 6.5  | 0.9            | 2.8  | 0.6  | -1.8 | 1.1      | 6.8  |
| 16 Quetta    | 0.9            | 1.8  | 0.9  | -1.2 | 0.9      | 4.9  | 0.8            | 2.1  | 0.7  | -1.0 | 0.9      | 4.7  |
| 17 Khuzdar   | -1.8           | 6.2  | -3.4 | 4.0  | -0.2     | 8.5  | -1.6           | 5.7  | -3.3 | 3.3  | 0.0      | 7.8  |
|              | Above Rs 35000 |      |      |      |          |      | Combined       |      |      |      |          |      |
|              | General        |      | Food |      | Non-Food |      | General        |      | Food |      | Non-Food |      |
|              | MoM            | YoY  | MoM  | YoY  | MoM      | YoY  | MoM            | YoY  | MoM  | YoY  | MoM      | YoY  |
| 1 Rawalpindi | 0.4            | 2.2  | 0.5  | -1.8 | 0.4      | 4.1  | 0.4            | 1.8  | 0.5  | -2.3 | 0.3      | 4.6  |
| 2 Islamabad  | 1.0            | 4.9  | 0.5  | -0.2 | 1.3      | 7.7  | 1.0            | 4.7  | 0.5  | -0.5 | 1.3      | 8.7  |
| 3 Lahore     | 0.5            | 4.5  | 1.0  | 1.8  | 0.2      | 6.0  | 0.5            | 3.7  | 1.0  | 0.8  | 0.2      | 6.1  |
| 4 Gujranwala | -0.1           | 1.5  | -0.3 | -0.1 | 0.0      | 2.4  | 0.2            | 0.7  | 0.3  | -1.6 | 0.1      | 2.4  |
| 5 Sialkot    | 1.9            | 3.4  | 1.0  | -2.6 | 2.3      | 6.6  | 1.8            | 2.6  | 1.1  | -3.5 | 2.4      | 7.2  |
| 6 Faisalabad | 2.2            | 5.4  | 0.7  | 0.0  | 2.9      | 8.4  | 1.9            | 4.0  | 0.4  | -0.5 | 2.9      | 7.5  |
| 7 Multan     | 0.1            | 2.5  | 0.2  | 1.3  | 0.1      | 3.0  | 0.1            | 1.3  | 0.1  | 0.0  | 0.1      | 2.2  |
| 8 Sargodha   | 0.8            | 6.4  | 1.3  | -0.4 | 0.6      | 9.6  | 0.9            | 3.4  | 1.3  | -1.3 | 0.6      | 6.5  |
| 9 Bahawalpur | 0.5            | 7.5  | 0.7  | -0.3 | 0.5      | 11.1 | 0.7            | 4.8  | 1.1  | -1.8 | 0.5      | 9.1  |
| 10 Karachi   | 0.0            | 1.8  | -0.3 | 0.1  | 0.1      | 2.8  | 0.0            | 1.3  | -0.2 | -0.5 | 0.2      | 2.7  |
| 11 Hyderabad | 0.6            | 4.3  | 0.2  | 4.0  | 0.9      | 4.4  | 0.8            | 3.6  | 0.5  | 2.9  | 1.0      | 4.2  |
| 12 Sukkur    | -0.2           | 3.5  | -0.4 | 2.4  | 0.0      | 4.0  | -0.3           | 2.7  | -0.9 | 1.1  | 0.1      | 3.8  |
| 13 Larkana   | 0.2            | 9.7  | 0.4  | 4.2  | 0.1      | 12.4 | 0.5            | 5.3  | 1.0  | 2.0  | 0.3      | 7.5  |
| 14 Peshawar  | 0.6            | 2.6  | 0.5  | -2.3 | 0.6      | 5.1  | 0.4            | 1.3  | 0.1  | -3.5 | 0.7      | 4.7  |
| 15 Bannu     | 0.8            | 4.8  | 1.0  | -1.7 | 0.8      | 8.3  | 0.7            | 2.6  | 0.4  | -2.2 | 0.9      | 6.0  |
| 16 Quetta    | 0.7            | 2.6  | 0.3  | 0.2  | 0.8      | 3.8  | 0.8            | 2.1  | 0.7  | -0.7 | 0.9      | 4.1  |
| 17 Khuzdar   | -0.9           | 5.8  | -1.8 | 5.1  | -0.4     | 6.1  | -2.0           | 5.7  | -3.7 | 3.6  | -0.7     | 7.3  |

**Table A6: City- wise CPI Inflation (YoY) July, 2017**

| City         | High inflation cities |      |          | City         | Low inflation cities |      |          |
|--------------|-----------------------|------|----------|--------------|----------------------|------|----------|
|              | General               | Food | Non-food |              | General              | Food | Non-food |
| Turbat       | 7.3                   | 0.9  | 11.1     | Attock       | 2.3                  | -0.7 | 4.4      |
| Khuzdar      | 5.7                   | 3.6  | 7.3      | Quetta       | 2.1                  | -0.7 | 4.1      |
| Larkana      | 5.3                   | 2.0  | 7.5      | Mirpukhas    | 1.9                  | 1.8  | 1.9      |
| Mianwali     | 5.2                   | -3.9 | 11.2     | Rawalpindi   | 1.8                  | -2.3 | 4.6      |
| Bahawalpur   | 4.8                   | -1.8 | 9.1      | Jhang        | 1.6                  | -2.3 | 4.2      |
| Islamabad    | 4.7                   | -0.5 | 8.7      | D. I. Khan   | 1.5                  | -1.6 | 3.6      |
| Vehari       | 4.4                   | -2.2 | 9.3      | Peshawar     | 1.3                  | -3.5 | 4.7      |
| Gawadar      | 4.2                   | 0.1  | 7.0      | Karachi      | 1.3                  | -0.5 | 2.7      |
| Faisalabad   | 4.0                   | -0.5 | 7.5      | Multan       | 1.3                  | 0.0  | 2.2      |
| Abbottabad   | 3.8                   | 3.6  | 3.9      | Mithi        | 1.0                  | 0.5  | 1.3      |
| Mingora      | 3.8                   | -0.4 | 6.4      | Wazirabad    | 1.0                  | -1.9 | 3.0      |
| Lahore       | 3.7                   | 0.8  | 6.1      | Jhelum       | 0.9                  | -3.7 | 4.3      |
| Hyderabad    | 3.6                   | 2.9  | 4.2      | Gujranwala   | 0.7                  | -1.6 | 2.4      |
| Bahawalnagar | 3.5                   | -2.6 | 7.9      | D. G. Khan   | 0.5                  | -2.3 | 2.4      |
| Sargodha     | 3.4                   | -1.3 | 6.5      | Mardan       | 0.4                  | -0.6 | 0.9      |
| Loralai      | 3.3                   | -0.7 | 6.0      | Muzaffargarh | 0.1                  | -2.6 | 2.2      |
| Dadu         | 3.2                   | 3.5  | 3.0      | Nawabshah    | -0.3                 | -0.8 | 0.1      |
| D. M. Jamali | 3.1                   | 2.3  | 3.7      |              |                      |      |          |
| R. Y. Khan   | 3.1                   | 1.9  | 3.9      |              |                      |      |          |
| Sukkur       | 2.7                   | 1.1  | 3.8      |              |                      |      |          |
| Sahiwal      | 2.6                   | -2.4 | 5.9      |              |                      |      |          |
| Bannu        | 2.6                   | -2.2 | 6.0      |              |                      |      |          |
| Sialkot      | 2.6                   | -3.5 | 7.2      |              |                      |      |          |

Note: High inflation refers to equal or above average inflation, and low inflation refers to below average

| <b>Table A7: Income Group-wise Inflation ( percent)</b> |               |               |               |               |               |               |
|---------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
|                                                         | <b>MoM</b>    |               |               | <b>YoY</b>    |               |               |
|                                                         | <b>Jul-16</b> | <b>Jun-17</b> | <b>Jul-17</b> | <b>Jul-16</b> | <b>Jun-17</b> | <b>Jul-17</b> |
| <b><u>Up to Rs. 8000</u></b>                            |               |               |               |               |               |               |
| General                                                 | 1.9           | -0.5          | 0.3           | 4.5           | 3.1           | 1.6           |
| Food                                                    | 2.9           | -1.0          | 0.1           | 4.9           | 1.6           | -1.1          |
| Non-food                                                | 0.6           | 0.1           | 0.6           | 4.0           | 5.0           | 4.9           |
| <b><u>Rs. 8001- 12000</u></b>                           |               |               |               |               |               |               |
| General                                                 | 1.6           | -0.5          | 0.3           | 4.6           | 3.3           | 2.0           |
| Food                                                    | 2.7           | -1.0          | 0.1           | 4.7           | 1.9           | -0.7          |
| Non-food                                                | 0.5           | 0.1           | 0.6           | 4.4           | 4.8           | 4.9           |
| <b><u>Rs. 12001- 18000</u></b>                          |               |               |               |               |               |               |
| General                                                 | 1.6           | -0.5          | 0.3           | 3.9           | 3.4           | 2.2           |
| Food                                                    | 2.7           | -1.2          | 0.1           | 4.8           | 2.0           | -0.6          |
| Non-food                                                | 0.5           | 0.1           | 0.6           | 3.0           | 4.9           | 4.9           |
| <b><u>Rs. 18001- 35000</u></b>                          |               |               |               |               |               |               |
| General                                                 | 1.4           | -0.5          | 0.2           | 4.4           | 3.6           | 2.4           |
| Food                                                    | 2.6           | -1.3          | 0.0           | 4.9           | 2.1           | -0.4          |
| Non-food                                                | 0.5           | 0.1           | 0.4           | 4.1           | 4.8           | 4.7           |
| <b><u>Above Rs. 35000</u></b>                           |               |               |               |               |               |               |
| General                                                 | 1.1           | -0.3          | 0.4           | 4.1           | 4.4           | 3.6           |
| Food                                                    | 2.3           | -1.0          | 0.0           | 4.5           | 2.9           | 0.7           |
| Non-food                                                | 0.6           | 0.1           | 0.6           | 3.9           | 5.2           | 5.2           |
| <b><u>All income groups</u></b>                         |               |               |               |               |               |               |
| General                                                 | 1.3           | -0.4          | 0.3           | 4.1           | 3.9           | 2.9           |
| Food                                                    | 2.5           | -1.1          | 0.0           | 4.7           | 2.4           | -0.1          |
| Non-food                                                | 0.5           | 0.1           | 0.6           | 3.7           | 5.0           | 5.1           |

Table A8: SPI Item-wise Price Movements

| Sr.No.  | Items                               | Unit   | Prices | Percentage change |       |
|---------|-------------------------------------|--------|--------|-------------------|-------|
|         |                                     |        | Jul-17 | YoY               | MoM   |
| 1       | Wheat                               | 10Kg.  | 321.8  | -1.8              | -0.6  |
| 2       | Wheat Flour Bag                     | 10Kg.  | 365.5  | -2.3              | -0.4  |
| 3       | Rice Basmati Broken                 | Kg.    | 69.1   | 14.7              | 0.6   |
| 4       | Rice Irri-6                         | Kg.    | 49.9   | 6.0               | 0.4   |
| 5       | Bread Plain Med. Size (340-400 Gm.) | Each   | 41.1   | 0.4               | 0.0   |
| 6       | Beef                                | Kg.    | 335.7  | 3.8               | 0.2   |
| 7       | Mutton                              | Kg.    | 693.7  | 7.6               | 0.9   |
| 8       | Chicken Live (Farm)                 | Kg.    | 151.5  | 3.5               | -0.8  |
| 9       | Milk Fresh                          | Litr   | 81.6   | 2.2               | 0.2   |
| 10      | Curd                                | Kg.    | 97.3   | 4.2               | 0.3   |
| 11      | Milk Powdered Nido                  | 500G   | 370.0  | -3.4              | 1.7   |
| 12      | Egg Hen (Farm)                      | Doz.   | 95.8   | 10.0              | 6.0   |
| 13      | Mustard Oil                         | Kg.    | 182.0  | 0.8               | 0.3   |
| 14      | Cooking Oil (Tin)                   | 2.5Ltr | 470.2  | 3.5               | 0.1   |
| 15      | Veg. Ghee (Tin)                     | 2.5Kg. | 463.2  | 4.1               | 0.1   |
| 16      | Veg. Ghee Loose                     | Kg.    | 145.1  | 5.0               | 0.2   |
| 17      | Bananas                             | Doz.   | 93.6   | -2.2              | -18.9 |
| 18      | Masoor Pulse Washed                 | Kg.    | 125.3  | -17.7             | -1.6  |
| 19      | Moong Pulse Washed                  | Kg.    | 126.3  | -19.9             | -1.3  |
| 20      | Mash Pulse Washed                   | Kg.    | 191.3  | -30.0             | -1.0  |
| 21      | Gram Pulse Washed                   | Kg.    | 124.8  | -17.7             | -3.3  |
| 22      | Potatoes                            | Kg.    | 38.4   | 9.7               | 0.8   |
| 23      | Onions                              | Kg.    | 31.6   | 1.0               | 9.0   |
| 24      | Tomatoes                            | Kg.    | 43.0   | -37.5             | -3.1  |
| 25      | Sugar                               | Kg.    | 55.0   | -18.3             | -2.5  |
| 26      | Cur                                 | Kg.    | 84.3   | -6.3              | 0.1   |
| 27      | Salt Powdered Loose (Lahori)        | Kg.    | 10.7   | 2.3               | 0.0   |
| 28      | Red Chillies Powder Loose           | Kg.    | 262.6  | -6.0              | -0.4  |
| 29      | Garlic                              | Kg.    | 202.6  | -11.0             | -4.6  |
| 30      | Tea (Yellow Label )                 | 200Gm. | 203.7  | 29.0              | 0.0   |
| 31      | Cooked Beef Plate                   | Each   | 93.5   | 2.7               | 0.0   |
| 32      | Cooked Dal Plate                    | Each   | 56.9   | 2.6               | 0.0   |
| 33      | Tea Prepared (Sada)                 | Cup    | 21.0   | 6.8               | 1.1   |
| 34      | Cigarettes K-2 (20'S)               | 20'S   | 50.8   | -20.3             | -10.2 |
| 35      | Long Cloth (Coarse Latha)           | Mtr.   | 212.3  | 3.3               | 1.1   |
| 36      | Shirting                            | Mtr.   | 169.3  | 3.0               | 0.7   |
| 37      | Lawn                                | Mtr.   | 255.8  | 1.8               | 0.0   |
| 38      | Georgette (Voil Printed)            | Mtr.   | 125.4  | 1.5               | 0.1   |
| 39      | Sandal Gents Bata                   | Pair   | 699.0  | 0.0               | 0.0   |
| 40      | Chappal Spong. Bata (Gents)         | Pair   | 179.1  | 0.0               | 0.0   |
| 41      | Sandal Ladies Bata                  | Pair   | 502.4  | 0.0               | 0.0   |
| 42      | Electric Charges 1-50               | Unit   | 2.0    | 0.0               | 0.0   |
| 43      | Gas Charges upto 3.3719             | Mmbtu  | 128.7  | 0.0               | 0.0   |
| 44      | Kerosene                            | Litr   | 78.8   | 5.3               | 0.0   |
| 45      | Firewood                            | 40Kg   | 608.7  | 1.9               | -0.1  |
| 46      | Energy Savor 14 Watts               | Each   | 167.8  | 0.0               | 0.0   |
| 47      | Washing Soap (200-250 Gm.)          | Cake   | 25.9   | 3.5               | 0.0   |
| 48      | Match Box                           | Each   | 2.2    | 5.7               | 0.0   |
| 49      | Petrol                              | Litr   | 72.0   | 10.6              | -1.7  |
| 50      | Diesel                              | Litr   | 80.8   | 10.0              | -1.8  |
| 51      | L.P.G.( 11 Kg Cylinder.)            | Each   | 984.0  | 7.8               | -0.3  |
| 52      | Tele. Local Call                    | Call   | 3.9    | 0.0               | 0.0   |
| 53      | Bath Soap Lifebuoy (Standard)       | Cake   | 41.6   | 13.8              | 0.5   |
| Maximum |                                     |        |        | 29.0              | 9.0   |
| Median  |                                     |        |        | 1.9               | 0.0   |
| Minimum |                                     |        |        | -37.5             | -18.9 |

| Table A9: Distribution of Price Changes (YoY) - WPI Items: July 2017         |                                                                                                                                                                                     |                                                                                                                                                                                                                                                                           |                                                                                                                                  |                                                                                       |
|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Groups                                                                       | Decrease or no change                                                                                                                                                               | Subdued increase (Greater than 0% but less than 5%)                                                                                                                                                                                                                       | Moderate increase (5% but less than 10%)                                                                                         | Double digit increase (10% or more)                                                   |
| Agriculture Forestry & Fishery Products                                      | Hides And Fur Skins,Raw, Millet/Bajra, Sorghum/Jowar, Vegetables, Pulses, Maize, Sugar Crops, Dry Fruits, Wheat, Fish Live Fresh Or Chilled, Raw Animal Material/Wool.              | Eggs, Milk From Bovine Animals, Cotton Seeds, Fresh Fruits, Fibre Crops.                                                                                                                                                                                                  | Other Oil Seeds, Poultry, Fuel Wood In Logs.                                                                                     | Edible Roots/Potatos, Unmanufactured Tobacco, Stimulant And Spice Crops, Rice.        |
| Ores & Minerals, Electricity Gas & Water                                     | Salt & Pure Sodium Chloride, Electrical Energy.                                                                                                                                     | Coal Not Agglomerated, Natural Gas Liquified.                                                                                                                                                                                                                             |                                                                                                                                  |                                                                                       |
| Food Products, Beverages and Tobacco, Textiles, Apparel and Leather Products | Tobacco Products, Other Cereal Flour, Sugar Refined, Wheat Flour, Oil Cakes, Nylon Yarn, Silk And Reyon Fabrics, Spices, Fruit Juices, Other Leather N.E.C, Leather With Out Hairs. | Vegetable Ghee, Towels, Blended Yarn, Cotton Yarn, Vegetable Oil Refined, Other Fabrics, Footwears, Mineral Water, Blankets, Synthetic Carpets, Cotton Fabrics, Ready Made Garments, Chocolate, Milk And Cream In Solid Form, Beverages, Bed Sheets, Other Food Products. | Hosiery Products, Dairy Products N.E.C, Woolen Carpets, Sugar Confectionary, Vegetables & Fruit Juices, Meat Of Animals, Quilts. | Coffee And Tea, Woven Fabrics, Dried Fruits & Nuts, Ice Cream, Processed Liquid Milk. |
| Other Transportable Goods except Metal Products, Machinery and Equipments    | Fertilizers, Auto Tyres, Pesticides, Plastic Products, Paints & Varnishes, Chemicals, Coke, Dying Materials.                                                                        | Hard Board, Cement, Soaps & Detergent, Mobil Oil, Kerosine Oil, Insecticised, Bricks Blocks And Tiles, Ceramics And Sanitary, Printing Paper.                                                                                                                             | Bed Foams, Medicines, Diesel Oil, Other Glass Articles, Matches, Timber.                                                         | Glass Sheets, Furnace Oil, Motor Sprit.                                               |
| Metal Product Machinery & Equipment                                          | Cultivators, Bicycles, Tractors, Lighting Equipments, Air Conditioners, Motor Cycles, Pig Iron, Concrate Mixer.                                                                     | Radio And Television, Chuff Cutter, Steel Products.                                                                                                                                                                                                                       | Vacuum Pumps, Engines And Motors, Electrical Wires, Motor Vehicales, Refrige,Wash& Sew Mach,Iron,Fan                             | Lathe Machines, Pipe Fittings, Steel Bars & Sheets.                                   |

**Table A10: Consumer Price Index Numbers by Major Groups and Composite Commodities**

| Items and specification                    | Weights       | Index         |               |               |
|--------------------------------------------|---------------|---------------|---------------|---------------|
|                                            |               | Jul-16        | Jun-17        | Jul-17        |
| <b>General</b>                             | <b>100.00</b> | <b>210.08</b> | <b>215.45</b> | <b>216.19</b> |
| <b>Food &amp; Non-Alcoholic Beverages.</b> | <b>34.83</b>  | <b>228.36</b> | <b>229.18</b> | <b>229.99</b> |
| 1 Wheat                                    | 190.81        | 192.58        | 191.16        | 192.58        |
| 2 Wheat Flour                              | 208.98        | 206.83        | 204.66        | 206.83        |
| 3 Wheat Product                            | 214.98        | 214.38        | 213.98        | 214.38        |
| 4 Besan                                    | 322.68        | 285.65        | 283.83        | 285.65        |
| 5 Rice                                     | 158.13        | 178.03        | 179.16        | 178.03        |
| 6 Cereals                                  | 249.62        | 254.31        | 255.20        | 254.31        |
| 7 Bakery & Confectionary                   | 215.31        | 218.31        | 218.39        | 218.31        |
| 8 Nimco                                    | 248.79        | 254.89        | 255.18        | 254.89        |
| 9 Meat                                     | 262.75        | 278.12        | 278.70        | 278.12        |
| 10 Chicken                                 | 184.75        | 182.45        | 190.36        | 182.45        |
| 11 Fish                                    | 218.77        | 217.81        | 214.09        | 217.81        |
| 12 Milk Fresh                              | 265.50        | 273.62        | 275.62        | 273.62        |
| 13 Milk Product                            | 256.27        | 262.51        | 264.40        | 262.51        |
| 14 Milk Powder                             | 236.84        | 233.49        | 234.53        | 233.49        |
| 15 Egg                                     | 178.31        | 186.21        | 193.19        | 186.21        |
| 16 Mustard Oil                             | 153.99        | 159.86        | 159.87        | 159.86        |
| 17 Cooking Oil                             | 133.61        | 137.77        | 138.25        | 137.77        |
| 18 Vegetable Ghee                          | 136.94        | 142.61        | 142.80        | 142.61        |
| 19 Dry Fruits                              | 263.57        | 264.11        | 264.33        | 264.11        |
| 20 Fresh Fruits                            | 259.98        | 304.46        | 284.14        | 304.46        |
| 21 Pulse Masoor                            | 213.56        | 178.77        | 178.60        | 178.77        |
| 22 Pulse Moong                             | 297.08        | 243.58        | 243.58        | 243.58        |
| 23 Pulse Mash (Washed)                     | 372.81        | 282.75        | 279.76        | 282.75        |
| 24 Pulse Gram                              | 336.26        | 290.14        | 281.95        | 290.14        |
| 25 Gram Whole                              | 298.45        | 287.99        | 287.96        | 287.99        |
| 26 Beans                                   | 236.29        | 235.22        | 242.51        | 235.22        |
| 27 Potatoes                                | 232.81        | 250.82        | 261.30        | 250.82        |
| 28 Onion                                   | 195.56        | 165.29        | 181.81        | 165.29        |
| 29 Tomatoes                                | 234.89        | 132.17        | 128.96        | 132.17        |
| 30 Fresh Vegetable                         | 294.26        | 240.24        | 262.61        | 240.24        |
| 31 Sugar                                   | 238.08        | 204.50        | 200.46        | 204.50        |
| 32 Gur                                     | 280.90        | 261.06        | 260.49        | 261.06        |
| 33 Honey                                   | 310.80        | 331.39        | 331.37        | 331.39        |
| 34 Sweet Meet                              | 242.45        | 251.16        | 251.88        | 251.16        |
| 35 Beverages                               | 221.71        | 227.14        | 226.09        | 227.14        |
| 36 Jam, Tomato Ketchup & Pickle            | 215.61        | 218.46        | 218.93        | 218.46        |
| 37 Condiments                              | 263.23        | 269.13        | 269.74        | 269.13        |
| 38 Spices                                  | 241.62        | 236.29        | 236.34        | 236.29        |
| 39 Tea                                     | 255.25        | 290.45        | 291.89        | 290.45        |
| <b>Alcoholic Beverages, Tobacco</b>        | <b>1.41</b>   | <b>364.79</b> | <b>324.60</b> | <b>306.67</b> |
| 40 Cigarette                               | 366.77        | 325.84        | 307.56        | 325.84        |
| 41 Betel Leaves & Nuts                     | 244.15        | 249.57        | 252.67        | 249.57        |
| <b>Clothing &amp; Footwear</b>             | <b>7.57</b>   | <b>229.72</b> | <b>237.99</b> | <b>238.66</b> |
| 42 Cotton Cloth                            | 224.88        | 231.26        | 232.33        | 231.26        |
| 43 Woolen Cloth                            | 244.64        | 256.38        | 256.60        | 256.38        |
| 44 Ready Made Garment                      | 237.04        | 246.39        | 247.08        | 246.39        |
| 45 Woolen Readymade Garments               | 253.14        | 258.35        | 258.31        | 258.35        |
| 46 Hosiery                                 | 242.55        | 247.18        | 248.56        | 247.18        |
| 47 Dopatta                                 | 240.75        | 244.81        | 246.51        | 244.81        |
| 48 Cleaning & Laundering                   | 253.34        | 270.23        | 270.83        | 270.23        |

| <b>Table A10: Consumer Price Index Numbers by Major Groups and Composite Commodities</b> |                                                    |              |               |               |               |
|------------------------------------------------------------------------------------------|----------------------------------------------------|--------------|---------------|---------------|---------------|
| Items and specification                                                                  |                                                    | Weights      | Index         |               |               |
|                                                                                          |                                                    |              | Jul-16        | Jun-17        | Jul-17        |
| 49                                                                                       | Tailoring                                          | 0.88         | 298.33        | 321.93        | 322.81        |
| 50                                                                                       | Footwear                                           | 1.55         | 166.44        | 167.43        | 167.43        |
|                                                                                          | <b>Housing, Water, Elect, Gas &amp; Other Fuel</b> | <b>29.41</b> | <b>188.88</b> | <b>196.71</b> | <b>198.88</b> |
| 51                                                                                       | House Rent                                         | 21.81        | 178.64        | 188.68        | 191.49        |
| 52                                                                                       | Construction Input Item                            | 0.56         | 247.05        | 251.12        | 254.05        |
| 53                                                                                       | Construction Wage Rate                             | 0.33         | 230.10        | 240.47        | 242.75        |
| 54                                                                                       | Water Supply                                       | 0.50         | 163.32        | 171.58        | 171.58        |
| 55                                                                                       | Electricity                                        | 4.40         | 238.10        | 238.10        | 238.10        |
| 56                                                                                       | Gas                                                | 1.58         | 158.08        | 158.08        | 158.08        |
| 57                                                                                       | Kerosene Oil                                       | 0.01         | 194.70        | 200.60        | 198.67        |
| 58                                                                                       | Fire Wood Whole                                    | 0.23         | 284.20        | 290.23        | 290.72        |
|                                                                                          | <b>Furnished H.Hold Equip.&amp; Maint. Etc</b>     | <b>4.21</b>  | <b>221.70</b> | <b>226.80</b> | <b>227.74</b> |
| 59                                                                                       | Furniture                                          | 0.33         | 211.78        | 218.43        | 219.56        |
| 60                                                                                       | Household Textile                                  | 0.65         | 221.08        | 228.35        | 229.70        |
| 61                                                                                       | Household Equipment                                | 0.59         | 178.43        | 182.57        | 182.79        |
| 62                                                                                       | Utensils                                           | 0.32         | 222.57        | 232.11        | 232.63        |
| 63                                                                                       | Plastic Products                                   | 0.25         | 207.38        | 210.85        | 211.07        |
| 64                                                                                       | Washing Soap & Detergent                           | 0.79         | 227.15        | 231.80        | 232.61        |
| 65                                                                                       | Sewing Needle & Dry Cell                           | 0.15         | 208.27        | 206.48        | 207.74        |
| 66                                                                                       | Household Servant                                  | 1.04         | 249.34        | 253.47        | 254.90        |
| 67                                                                                       | Marriage Hall Charges                              | 0.08         | 243.04        | 248.67        | 248.67        |
|                                                                                          | <b>Health</b>                                      | <b>2.19</b>  | <b>187.84</b> | <b>212.66</b> | <b>212.91</b> |
| 68                                                                                       | Drug Medicine                                      | 1.27         | 153.75        | 184.69        | 185.10        |
| 69                                                                                       | Medical Equipment                                  | 0.01         | 234.15        | 251.21        | 251.81        |
| 70                                                                                       | Doctor (MBBS) Clinic Fee                           | 0.59         | 260.45        | 280.95        | 280.95        |
| 71                                                                                       | Medical Test                                       | 0.32         | 187.65        | 196.52        | 196.54        |
|                                                                                          | <b>Transport</b>                                   | <b>7.20</b>  | <b>169.78</b> | <b>175.87</b> | <b>175.18</b> |
| 72                                                                                       | Motor Vehicle                                      | 0.66         | 167.27        | 175.81        | 176.06        |
| 73                                                                                       | Motor Vehicle Accessories                          | 0.24         | 213.84        | 211.58        | 211.42        |
| 74                                                                                       | Motor Fuel                                         | 3.03         | 135.77        | 147.67        | 145.84        |
| 75                                                                                       | Mechanical Service                                 | 0.46         | 227.35        | 230.82        | 231.88        |
| 76                                                                                       | Motor Vehicle Tax                                  | 0.11         | 210.18        | 210.18        | 210.18        |
| 77                                                                                       | Transport Services                                 | 2.70         | 193.15        | 193.59        | 193.59        |
|                                                                                          | <b>Communication</b>                               | <b>3.22</b>  | <b>130.89</b> | <b>132.91</b> | <b>132.88</b> |
| 78                                                                                       | Postal Services                                    | 0.07         | 240.38        | 250.18        | 250.44        |
| 79                                                                                       | Communication & Apparatus                          | 3.15         | 128.59        | 130.44        | 130.41        |
|                                                                                          | <b>Recreation &amp; Culture</b>                    | <b>2.02</b>  | <b>195.67</b> | <b>196.15</b> | <b>196.09</b> |
| 80                                                                                       | Recreation & Culture                               | 0.86         | 128.84        | 129.73        | 129.20        |
| 81                                                                                       | Text Books                                         | 0.57         | 292.41        | 287.98        | 287.98        |
| 82                                                                                       | News Papers                                        | 0.19         | 175.49        | 181.16        | 181.78        |
| 83                                                                                       | Stationery                                         | 0.40         | 211.89        | 215.98        | 216.54        |
|                                                                                          | <b>Education</b>                                   | <b>3.94</b>  | <b>224.09</b> | <b>249.26</b> | <b>249.54</b> |
| 84                                                                                       | Education                                          | 3.94         | 224.09        | 249.26        | 249.54        |
|                                                                                          | <b>Restaurants And Hotels</b>                      | <b>1.23</b>  | <b>264.37</b> | <b>277.76</b> | <b>278.44</b> |
| 85                                                                                       | Ready Made Food                                    | 1.23         | 264.37        | 277.76        | 278.44        |
|                                                                                          | <b>Miscellaneous Goods And Services</b>            | <b>2.76</b>  | <b>235.82</b> | <b>246.71</b> | <b>247.19</b> |
| 86                                                                                       | Personal Care                                      | 1.49         | 215.67        | 227.42        | 228.11        |
| 87                                                                                       | Cosmetics                                          | 0.39         | 200.22        | 204.96        | 205.40        |
| 88                                                                                       | Blades                                             | 0.03         | 195.16        | 197.80        | 197.80        |
| 89                                                                                       | Personal Equipments                                | 0.84         | 289.27        | 301.76        | 301.92        |

**Table A11: Wholesale Price Index Numbers by Major Groups and Composite Commodities**

| Items and Specifications                  | Index         |               |               |
|-------------------------------------------|---------------|---------------|---------------|
|                                           | Jul-16        | Jun-17        | Jul-17        |
| <b>General</b>                            | <b>215.81</b> | <b>217.77</b> | <b>217.24</b> |
| <b>Agriculture Forestry &amp; Fishery</b> | <b>253.54</b> | <b>255.41</b> | <b>251.86</b> |
| 1 Wheat                                   | 204.39        | 197.88        | 196.73        |
| 2 Maize                                   | 204.55        | 194.40        | 187.91        |
| 3 Rice                                    | 148.12        | 166.29        | 167.90        |
| 4 Sorghum/Jowar                           | 277.01        | 211.32        | 213.13        |
| 5 Millet/Bajra                            | 218.25        | 163.48        | 160.62        |
| 6 Vegetables                              | 361.19        | 241.83        | 285.60        |
| 7 Fresh Fruits                            | 307.84        | 362.37        | 314.93        |
| 8 Dry Fruits                              | 247.50        | 236.63        | 237.06        |
| 9 Cotton Seeds                            | 273.95        | 277.99        | 280.36        |
| 10 Other Oil Seeds                        | 171.21        | 181.04        | 182.82        |
| 11 Edible Roots/ Potatoes                 | 226.53        | 271.09        | 273.56        |
| 12 Stimulant And Spice Crops              | 209.95        | 221.79        | 243.03        |
| 13 Pulses                                 | 313.08        | 266.71        | 266.22        |
| 14 Sugar Crops                            | 286.34        | 268.94        | 268.94        |
| 15 Fibre Crops                            | 203.00        | 219.02        | 204.44        |
| 16 Unmanufactured Tobacco                 | 251.05        | 291.25        | 290.76        |
| 17 Poultry                                | 188.40        | 192.50        | 201.12        |
| 18 Milk From Bovine Animals               | 261.80        | 268.56        | 268.56        |
| 19 Eggs                                   | 185.05        | 182.17        | 191.56        |
| 20 Raw Animal Material/Wool               | 173.89        | 176.22        | 173.80        |
| 21 Hides And Fur Skins, Raw               | 150.46        | 106.42        | 102.78        |
| 22 Fuel Wood In Logs                      | 264.77        | 279.63        | 279.63        |
| 23 Fishes Live Fresh Or Chilled           | 469.80        | 466.43        | 463.98        |
| <b>Ores/Minerals, Gas &amp; Elect.</b>    | <b>241.43</b> | <b>241.61</b> | <b>241.76</b> |
| 24 Coal Not Agglomerated                  | 152.94        | 155.29        | 155.29        |
| 25 Natural Gas Liquefied                  | 208.30        | 208.46        | 208.82        |
| 26 Salt & Pure Sodium Chloride            | 254.33        | 246.13        | 242.77        |
| 27 Electrical Energy                      | 288.00        | 288.00        | 288.00        |
| <b>Food, Beverages, Tobacco, Textiles</b> | <b>223.61</b> | <b>222.73</b> | <b>224.20</b> |
| 28 Meat Of Animals                        | 276.90        | 291.67        | 294.10        |
| 29 Vegetables & Fruit Juices              | 208.88        | 224.14        | 223.38        |
| 30 Dried Fruits & Nuts                    | 239.77        | 268.30        | 268.30        |
| 31 Fruit Juices                           | 182.12        | 181.82        | 181.83        |
| 32 Vegetable Oil Refined                  | 152.00        | 155.51        | 155.56        |
| 33 Vegetable Ghee                         | 120.58        | 126.16        | 126.24        |
| 34 Oil Cakes                              | 235.62        | 227.93        | 229.39        |
| 35 Processed Liquid Milk                  | 251.20        | 266.86        | 279.71        |
| 36 Milk And Cream In Solid Form           | 220.87        | 219.35        | 221.77        |
| 37 Ice Cream                              | 238.04        | 261.28        | 266.02        |
| 38 Dairy Products N.E.C                   | 248.53        | 258.19        | 269.53        |
| 39 Wheat Flour                            | 193.90        | 189.57        | 188.03        |
| 40 Other Cereal Flour                     | 309.70        | 247.19        | 236.55        |
| 41 Sugar Refined                          | 254.89        | 210.04        | 203.39        |
| 42 Chocolate                              | 99.45         | 100.00        | 100.00        |
| 43 Sugar Confectionary                    | 118.83        | 128.44        | 128.44        |
| 44 Coffee And Tea                         | 230.02        | 263.86        | 261.18        |
| 45 Spices                                 | 190.20        | 189.72        | 189.72        |
| 46 Other Food Products                    | 293.85        | 294.01        | 294.01        |
| 47 Mineral Water                          | 196.22        | 198.57        | 199.51        |
| 48 Beverages                              | 172.44        | 172.03        | 172.92        |
| 49 Tobacco Products                       | 435.03        | 318.37        | 318.37        |
| 50 Cotton Yarn                            | 197.57        | 203.44        | 202.68        |
| 51 Nylon Yarn                             | 147.08        | 143.99        | 143.99        |
| 52 Blended Yarn                           | 177.11        | 182.11        | 182.65        |
| 53 Woven Fabrics                          | 279.69        | 316.28        | 316.28        |
| 54 Cotton Fabrics                         | 208.84        | 211.60        | 211.33        |
| 55 Other Fabrics                          |               |               |               |

| <b>Table A11: Wholesale Price Index Numbers by Major Groups and Composite Commodities</b> |                                  |               |               |               |
|-------------------------------------------------------------------------------------------|----------------------------------|---------------|---------------|---------------|
| <b>Items and Specifications</b>                                                           |                                  | <b>Index</b>  |               |               |
|                                                                                           |                                  | <b>Jun-16</b> | <b>May-17</b> | <b>Jun-17</b> |
| 56                                                                                        | Silk And Rayon Fabrics           | 222.36        | 227.16        | 227.16        |
| 57                                                                                        | Towels                           | 190.96        | 188.89        | 188.89        |
| 58                                                                                        | Blankets                         | 267.20        | 276.14        | 276.14        |
| 59                                                                                        | Bed Sheets                       | 243.93        | 247.52        | 247.52        |
| 60                                                                                        | Quilts                           | 256.29        | 256.87        | 256.87        |
| 61                                                                                        | Woolen Carpets                   | 198.00        | 203.79        | 208.42        |
| 62                                                                                        | Synthetic Carpets                | 181.55        | 196.43        | 196.43        |
| 63                                                                                        | Hosiery Products                 | 129.25        | 130.95        | 130.95        |
| 64                                                                                        | Ready Made Garments              | 222.52        | 243.31        | 243.31        |
| 65                                                                                        | Leather With Out Hairs           | 199.61        | 201.37        | 201.37        |
| 66                                                                                        | Other Leather N.E.C              | 221.97        | 221.97        | 221.97        |
| 67                                                                                        | Footwear's                       | 207.31        | 207.31        | 207.31        |
| <b>Other Transportable Goods</b>                                                          |                                  | <b>164.40</b> | <b>170.67</b> | <b>170.61</b> |
| 68                                                                                        | Timber                           | 220.36        | 231.53        | 231.53        |
| 69                                                                                        | Printing Paper                   | 165.84        | 165.67        | 166.11        |
| 70                                                                                        | Hard Board                       | 212.50        | 220.83        | 220.83        |
| 71                                                                                        | Coke                             | 163.45        | 163.45        | 163.45        |
| 72                                                                                        | Motor Sprit                      | 108.54        | 122.95        | 120.42        |
| 73                                                                                        | Diesel Oil                       | 144.34        | 155.08        | 153.43        |
| 74                                                                                        | Kerosene Oil                     | 115.11        | 117.12        | 117.12        |
| 75                                                                                        | Furnace Oil                      | 80.24         | 98.32         | 97.35         |
| 76                                                                                        | Mobil Oil                        | 196.00        | 201.29        | 201.29        |
| 77                                                                                        | Chemicals                        | 178.21        | 172.93        | 177.88        |
| 78                                                                                        | Dying Materials                  | 146.55        | 146.55        | 146.55        |
| 79                                                                                        | Fertilizers                      | 227.23        | 216.40        | 215.02        |
| 80                                                                                        | Pesticides                       | 312.37        | 304.43        | 306.06        |
| 81                                                                                        | Insecticides                     | 137.30        | 141.88        | 139.64        |
| 82                                                                                        | Paints & Varnishes               | 295.36        | 294.51        | 294.51        |
| 83                                                                                        | Medicines                        | 162.62        | 174.00        | 174.14        |
| 84                                                                                        | Soaps & Detergent                | 185.10        | 191.14        | 191.20        |
| 85                                                                                        | Auto Tyres                       | 181.25        | 177.07        | 177.07        |
| 86                                                                                        | Plastic Products                 | 228.35        | 225.88        | 225.88        |
| 87                                                                                        | Glass Sheets                     | 233.11        | 298.97        | 298.97        |
| 88                                                                                        | Other Glass Articles             | 299.07        | 317.24        | 317.24        |
| 89                                                                                        | Ceramics And Sanitary            | 231.59        | 233.92        | 232.65        |
| 90                                                                                        | Bricks Blocks And Tiles          | 218.73        | 220.73        | 221.24        |
| 91                                                                                        | Cement                           | 211.95        | 215.12        | 220.11        |
| 92                                                                                        | Bed Foams                        | 158.83        | 170.00        | 170.33        |
| 93                                                                                        | Matches                          | 162.62        | 171.36        | 171.36        |
| <b>Metal Product Machinery &amp; Equip</b>                                                |                                  | <b>172.94</b> | <b>176.73</b> | <b>176.14</b> |
| 94                                                                                        | Pig Iron                         | 128.97        | 128.97        | 128.97        |
| 95                                                                                        | Steel Bars & Sheets              | 124.34        | 136.91        | 137.44        |
| 96                                                                                        | Pipe Fittings                    | 193.63        | 215.66        | 215.66        |
| 97                                                                                        | Steel Products                   | 176.99        | 177.56        | 177.56        |
| 98                                                                                        | Engines And Motors               | 109.24        | 116.98        | 116.98        |
| 99                                                                                        | Vacuum Pumps                     | 114.95        | 123.69        | 123.69        |
| 100                                                                                       | Air Conditioners                 | 201.18        | 200.10        | 200.10        |
| 101                                                                                       | Cultivators                      | 219.76        | 190.66        | 190.66        |
| 102                                                                                       | Chuff Cutter                     | 149.20        | 153.46        | 153.46        |
| 103                                                                                       | Tractors                         | 203.68        | 201.75        | 201.75        |
| 104                                                                                       | Lathe Machines                   | 208.81        | 241.06        | 241.06        |
| 105                                                                                       | Concrete Mixer                   | 138.83        | 138.83        | 138.83        |
| 106                                                                                       | Refrige,Wash& Sew Mach, Iron,Fan | 204.01        | 214.85        | 214.93        |
| 107                                                                                       | Electrical Wires                 | 195.19        | 204.51        | 205.92        |
| 108                                                                                       | Lighting Equipments              | 172.03        | 170.73        | 170.73        |
| 109                                                                                       | Radio And Television             | 135.55        | 140.42        | 140.42        |
| 110                                                                                       | Motor Vehicles                   | 185.25        | 195.36        | 195.36        |
| 111                                                                                       | Motor Cycles                     | 125.89        | 125.89        | 125.89        |
| 112                                                                                       | Bicycles                         |               |               |               |

**Table A12: Price Indices - Base 2007-08 = 100**

| Period  |     | CPI     |        |          | WPI     |        |          | SPI *  |
|---------|-----|---------|--------|----------|---------|--------|----------|--------|
|         |     | Overall | Food   | Non-food | Overall | Food   | Non-Food |        |
| 2008-09 |     | 117.03  | 123.12 | 113.38   | 118.93  | 119.68 | 118.45   | 123.26 |
| 2009-10 |     | 128.85  | 139.05 | 122.73   | 135.40  | 136.85 | 134.48   | 139.84 |
| 2010-11 |     | 146.45  | 164.10 | 135.87   | 164.17  | 159.26 | 167.28   | 164.02 |
| 2011-12 |     | 162.57  | 182.20 | 150.80   | 181.28  | 181.32 | 181.26   | 178.67 |
| 2012-13 |     | 174.53  | 195.18 | 162.16   | 194.61  | 197.21 | 192.95   | 189.64 |
| 2013-14 |     | 189.58  | 212.74 | 175.69   | 210.48  | 213.04 | 208.85   | 208.66 |
| 2014-15 |     | 198.16  | 220.20 | 184.95   | 209.85  | 226.22 | 199.47   | 212.61 |
| 2015-16 |     | 203.82  | 224.78 | 191.25   | 207.64  | 234.69 | 190.47   | 216.23 |
| 2016-17 |     | 212.29  | 233.37 | 199.65   | 216.02  | 248.74 | 195.27   | 220.10 |
| 2015    | Mar | 195.57  | 214.25 | 184.37   | 203.89  | 222.11 | 192.33   | 207.05 |
|         | Apr | 198.16  | 217.26 | 186.71   | 205.65  | 225.38 | 193.13   | 208.42 |
|         | May | 199.66  | 221.22 | 186.74   | 207.92  | 228.09 | 195.12   | 211.48 |
|         | Jun | 200.89  | 223.84 | 187.13   | 210.37  | 232.39 | 196.40   | 214.29 |
|         | Jul | 201.76  | 224.14 | 188.35   | 209.53  | 233.68 | 194.20   | 215.13 |
|         | Aug | 202.25  | 224.86 | 188.70   | 208.42  | 236.00 | 190.92   | 214.33 |
|         | Sep | 202.04  | 223.87 | 188.95   | 207.60  | 234.37 | 190.61   | 215.23 |
|         | Oct | 203.03  | 224.86 | 189.95   | 208.69  | 234.47 | 192.34   | 217.02 |
|         | Nov | 204.22  | 227.55 | 190.23   | 208.72  | 232.83 | 193.43   | 219.37 |
|         | Dec | 203.06  | 223.90 | 190.57   | 207.37  | 230.72 | 192.55   | 218.60 |
| 2016    | Jan | 203.49  | 222.58 | 192.05   | 206.27  | 231.14 | 190.48   | 217.47 |
|         | Feb | 202.98  | 221.07 | 192.14   | 205.05  | 231.26 | 188.42   | 215.73 |
|         | Mar | 203.28  | 222.25 | 191.91   | 204.22  | 231.43 | 186.95   | 215.13 |
|         | Apr | 206.43  | 227.53 | 193.78   | 206.87  | 237.05 | 187.72   | 215.88 |
|         | May | 205.99  | 225.84 | 194.09   | 208.01  | 238.62 | 188.59   | 214.35 |
|         | Jun | 207.30  | 228.95 | 194.32   | 210.88  | 244.68 | 189.44   | 216.58 |
|         | Jul | 210.08  | 234.69 | 195.33   | 215.81  | 251.76 | 192.99   | 218.81 |
|         | Aug | 209.46  | 232.48 | 195.66   | 215.75  | 250.12 | 193.95   | 218.66 |
|         | Sep | 209.88  | 232.80 | 196.14   | 214.61  | 250.41 | 191.89   | 218.67 |
|         | Oct | 211.57  | 234.68 | 197.72   | 214.53  | 250.63 | 191.64   | 220.11 |
|         | Nov | 212.01  | 235.17 | 198.13   | 214.07  | 247.89 | 192.62   | 220.68 |
|         | Dec | 210.57  | 230.69 | 198.51   | 213.76  | 244.40 | 194.32   | 219.73 |
| 2017    | Jan | 210.94  | 228.45 | 200.44   | 214.84  | 244.73 | 195.87   | 218.35 |
|         | Feb | 211.54  | 229.19 | 200.96   | 215.86  | 244.91 | 197.42   | 219.25 |
|         | Mar | 213.32  | 233.47 | 201.24   | 217.29  | 247.53 | 198.10   | 223.62 |
|         | Apr | 216.30  | 237.50 | 203.59   | 219.22  | 252.45 | 198.13   | 222.07 |
|         | May | 216.33  | 237.01 | 203.94   | 218.78  | 251.10 | 198.26   | 220.51 |
|         | Jun | 215.45  | 234.37 | 204.11   | 217.77  | 248.90 | 198.02   | 220.68 |
|         | Jul | 216.19  | 234.47 | 205.23   | 217.24  | 249.95 | 196.63   | 219.28 |

\*: all groups combined

| <b>Table A13: International Commodity Prices/ Indices</b>                                                                                                                                                                                                 |               |               |               |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------------|---------------|
|                                                                                                                                                                                                                                                           | <b>Mar-17</b> | <b>Apr-17</b> | <b>May-17</b> | <b>Jun-17</b> |
| <b>Energy</b>                                                                                                                                                                                                                                             |               |               |               |               |
| Crude Oil (US\$ per barrel) *                                                                                                                                                                                                                             | 50.9          | 52.2          | 49.9          | 46.1          |
| IMF Energy Index (2005 = 100)                                                                                                                                                                                                                             | 96.0          | 98.4          | 94.0          | 88.2          |
| WB Energy Index (2010 = 100) @                                                                                                                                                                                                                            | 65.3          | 67.1          | 64.3          | 60.4          |
| <b>Food</b>                                                                                                                                                                                                                                               |               |               |               |               |
| Rice (\$/MT)                                                                                                                                                                                                                                              | 367.8         | 374.5         | 402.9         | 444.7         |
| Wheat (\$/MT)                                                                                                                                                                                                                                             | 146.4         | 138.4         | 146.5         | 157.2         |
| Sugar (US cent/ pound)                                                                                                                                                                                                                                    | 18.1          | 16.4          | 15.7          | 13.7          |
| Palm Oil (\$/MT)                                                                                                                                                                                                                                          | 663.3         | 623.2         | 655.5         | 621.2         |
| Soybean Oil (\$/MT)                                                                                                                                                                                                                                       | 723.4         | 695.3         | 714.1         | 704.8         |
| <b>Non-Food Non-Energy</b>                                                                                                                                                                                                                                |               |               |               |               |
| Cotton Outlook 'A' Index #                                                                                                                                                                                                                                | 86.8          | 87.0          | 88.6          | 84.8          |
| IMF Metal Price Index (2005 = 100)                                                                                                                                                                                                                        | 149.4         | 139.9         | 134.4         | 132.4         |
| Copper (\$/MT)                                                                                                                                                                                                                                            | 5,824.6       | 5,683.9       | 5,599.6       | 5,719.8       |
| Aluminum (\$/MT)                                                                                                                                                                                                                                          | 1,901.5       | 1,921.2       | 1,913.0       | 1,885.3       |
| Iron Ore (\$ cents/dry MT)                                                                                                                                                                                                                                | 87.2          | 70.4          | 61.6          | 57.9          |
| Tin (\$/MT)                                                                                                                                                                                                                                               | 19,875.2      | 19,910.3      | 20,200.3      | 19,658.8      |
| Nickel (\$/MT)                                                                                                                                                                                                                                            | 10,204.7      | 9,609.3       | 9,155.1       | 8,931.8       |
| Zinc (\$/MT)                                                                                                                                                                                                                                              | 2,776.9       | 2,614.9       | 2,590.2       | 2,573.4       |
| Lead (\$/MT)                                                                                                                                                                                                                                              | 2,280.9       | 2,220.6       | 2,125.1       | 2,132.9       |
| Uranium (\$/MT)                                                                                                                                                                                                                                           | 24.6          | 23.2          | 21.6          | 19.7          |
| DAP (\$/MT)                                                                                                                                                                                                                                               | 375.0         | 366.0         | 357.0         | 350.0         |
| Urea (\$/MT)                                                                                                                                                                                                                                              | 234.0         | 205.0         | 180.0         | 185.0         |
| Source: IMF and World Bank (The latest prices for the month of July, 2017 are not available till date)                                                                                                                                                    |               |               |               |               |
| \$/MT = US\$ per metric ton.                                                                                                                                                                                                                              |               |               |               |               |
| * Crude Oil (Petroleum), simple average of three spot prices; Dated Brent, West Texas Intermediate, and the Dubai fateh                                                                                                                                   |               |               |               |               |
| # Middling 1-3/32 inch staple, Liverpool Index "A", average of the cheapest Cts/lb five of fourteen styles, CIF Liverpool (Cotton Outlook, Liverpool). From January 1968 to May 1981 strict middling 1-1/16 inch staple. Prior to 1968, Mexican 1-1/16.2/ |               |               |               |               |
| DAP: Diammonium Phosphate                                                                                                                                                                                                                                 |               |               |               |               |
| @ World Bank commodity index for low and middle income countries                                                                                                                                                                                          |               |               |               |               |

| <b>Table 14: CPI Data Series Original and Seasonally Adjusted</b> |             |             |             |             |             |
|-------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Original Series</b>                                            |             |             |             |             |             |
| <b>Period</b>                                                     | <b>FY14</b> | <b>FY15</b> | <b>FY16</b> | <b>FY17</b> | <b>FY18</b> |
| Jul                                                               | 183.58      | 198.05      | 201.76      | 210.08      | 216.19      |
| Aug                                                               | 185.71      | 198.70      | 202.25      | 209.46      |             |
| Sep                                                               | 185.18      | 199.40      | 202.04      | 209.88      |             |
| Oct                                                               | 188.82      | 199.81      | 203.03      | 211.57      |             |
| Nov                                                               | 191.21      | 198.79      | 204.22      | 212.01      |             |
| Dec                                                               | 188.68      | 196.79      | 203.06      | 210.57      |             |
| Jan                                                               | 189.60      | 196.95      | 203.49      | 210.94      |             |
| Feb                                                               | 189.00      | 195.13      | 202.98      | 211.54      |             |
| Mar                                                               | 190.82      | 195.57      | 203.28      | 213.32      |             |
| Apr                                                               | 194.06      | 198.16      | 206.43      | 216.30      |             |
| May                                                               | 193.55      | 199.66      | 205.99      | 216.33      |             |
| Jun                                                               | 194.74      | 200.89      | 207.30      | 215.45      |             |
| <b>Seasonally Adjusted Series</b>                                 |             |             |             |             |             |
| Jul                                                               | 182.82      | 197.18      | 200.86      | 209.11      | 215.20      |
| Aug                                                               | 184.39      | 197.35      | 200.93      | 208.10      |             |
| Sep                                                               | 184.00      | 198.15      | 200.81      | 208.65      |             |
| Oct                                                               | 187.15      | 198.06      | 201.29      | 209.80      |             |
| Nov                                                               | 189.99      | 197.57      | 203.00      | 210.75      |             |
| Dec                                                               | 189.69      | 197.80      | 204.05      | 211.54      |             |
| Jan                                                               | 190.25      | 197.66      | 204.27      | 211.81      |             |
| Feb                                                               | 190.99      | 197.20      | 205.12      | 213.77      |             |
| Mar                                                               | 192.47      | 197.30      | 205.12      | 215.26      |             |
| Apr                                                               | 193.90      | 197.98      | 206.23      | 216.05      |             |
| May                                                               | 194.01      | 200.07      | 206.36      | 216.69      |             |
| Jun                                                               | 195.40      | 201.50      | 207.86      | 215.97      |             |

| <b>Table 15: CPI Food Data Series Original and Seasonally Adjusted</b> |             |             |             |             |             |
|------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Original Series</b>                                                 |             |             |             |             |             |
| <b>Period</b>                                                          | <b>FY14</b> | <b>FY15</b> | <b>FY16</b> | <b>FY17</b> | <b>FY18</b> |
| Jul                                                                    | 208.19      | 222.80      | 224.14      | 234.69      | 234.47      |
| Aug                                                                    | 212.27      | 224.05      | 224.86      | 232.48      |             |
| Sep                                                                    | 209.09      | 224.12      | 223.87      | 232.80      |             |
| Oct                                                                    | 212.61      | 223.74      | 224.86      | 234.68      |             |
| Nov                                                                    | 218.16      | 222.74      | 227.55      | 235.17      |             |
| Dec                                                                    | 210.89      | 218.08      | 223.90      | 230.69      |             |
| Jan                                                                    | 210.81      | 217.10      | 222.58      | 228.45      |             |
| Feb                                                                    | 208.74      | 213.15      | 221.07      | 229.19      |             |
| Mar                                                                    | 213.11      | 214.25      | 222.25      | 233.47      |             |
| Apr                                                                    | 217.33      | 217.26      | 227.53      | 237.50      |             |
| May                                                                    | 214.75      | 221.22      | 225.84      | 237.01      |             |
| Jun                                                                    | 216.98      | 223.84      | 228.95      | 234.37      |             |
| <b>Seasonally Adjusted Series</b>                                      |             |             |             |             |             |
| Jul                                                                    | 206.43      | 220.80      | 222.05      | 232.46      | 232.23      |
| Aug                                                                    | 208.99      | 220.66      | 221.52      | 229.03      |             |
| Sep                                                                    | 206.08      | 220.92      | 220.76      | 229.70      |             |
| Oct                                                                    | 209.26      | 220.31      | 221.50      | 231.32      |             |
| Nov                                                                    | 214.87      | 219.44      | 224.30      | 231.84      |             |
| Dec                                                                    | 212.66      | 219.84      | 225.57      | 232.28      |             |
| Jan                                                                    | 212.78      | 219.28      | 225.00      | 231.17      |             |
| Feb                                                                    | 213.61      | 218.20      | 226.29      | 234.61      |             |
| Mar                                                                    | 216.35      | 217.58      | 225.75      | 237.12      |             |
| Apr                                                                    | 217.78      | 217.69      | 227.94      | 237.82      |             |
| May                                                                    | 216.06      | 222.41      | 226.93      | 238.07      |             |
| Jun                                                                    | 218.31      | 224.97      | 229.89      | 235.16      |             |

**Table 16: CPI Monthly & Average Seasonal Factors**

| Period | FY14   | FY15   | FY16   | FY17   | FY18   | Average |
|--------|--------|--------|--------|--------|--------|---------|
| Jul    | 100.42 | 100.44 | 100.45 | 100.46 | 100.46 | 100.45  |
| Aug    | 100.71 | 100.69 | 100.66 | 100.65 |        | 100.68  |
| Sep    | 100.64 | 100.63 | 100.61 | 100.59 |        | 100.62  |
| Oct    | 100.89 | 100.88 | 100.87 | 100.84 |        | 100.87  |
| Nov    | 100.64 | 100.62 | 100.60 | 100.60 |        | 100.62  |
| Dec    | 99.47  | 99.49  | 99.51  | 99.54  |        | 99.50   |
| Jan    | 99.66  | 99.64  | 99.62  | 99.59  |        | 99.63   |
| Feb    | 98.96  | 98.95  | 98.96  | 98.96  |        | 98.96   |
| Mar    | 99.14  | 99.13  | 99.10  | 99.10  |        | 99.12   |
| Apr    | 100.08 | 100.09 | 100.10 | 100.12 |        | 100.10  |
| May    | 99.76  | 99.79  | 99.82  | 99.83  |        | 99.80   |
| Jun    | 99.66  | 99.70  | 99.73  | 99.76  |        | 99.71   |

**Table 17: CPI Food Monthly & Average Seasonal Factors**

| Period | FY14   | FY15   | FY16   | FY17   | FY18   | Average |
|--------|--------|--------|--------|--------|--------|---------|
| Jul    | 100.85 | 100.91 | 100.94 | 100.96 | 100.96 | 100.92  |
| Aug    | 101.57 | 101.54 | 101.51 | 101.51 |        | 101.53  |
| Sep    | 101.46 | 101.45 | 101.41 | 101.35 |        | 101.42  |
| Oct    | 101.60 | 101.56 | 101.52 | 101.45 |        | 101.53  |
| Nov    | 101.53 | 101.50 | 101.45 | 101.44 |        | 101.48  |
| Dec    | 99.17  | 99.20  | 99.26  | 99.32  |        | 99.24   |
| Jan    | 99.07  | 99.01  | 98.93  | 98.82  |        | 98.96   |
| Feb    | 97.72  | 97.69  | 97.69  | 97.69  |        | 97.70   |
| Mar    | 98.51  | 98.47  | 98.45  | 98.46  |        | 98.47   |
| Apr    | 99.79  | 99.80  | 99.82  | 99.87  |        | 99.82   |
| May    | 99.39  | 99.47  | 99.52  | 99.55  |        | 99.48   |
| Jun    | 99.39  | 99.50  | 99.59  | 99.67  |        | 99.54   |

| <b>Table 18: CPI Month-on-Month % Change Original &amp; Seasonally Adjusted</b> |             |             |             |             |             |
|---------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Original Series</b>                                                          |             |             |             |             |             |
| <b>Period</b>                                                                   | <b>FY14</b> | <b>FY15</b> | <b>FY16</b> | <b>FY17</b> | <b>FY18</b> |
| Jul                                                                             | 2.02        | 1.70        | 0.43        | 1.34        | 0.34        |
| Aug                                                                             | 1.16        | 0.33        | 0.24        | -0.30       |             |
| Sep                                                                             | -0.29       | 0.35        | -0.10       | 0.20        |             |
| Oct                                                                             | 1.97        | 0.21        | 0.49        | 0.81        |             |
| Nov                                                                             | 1.27        | -0.51       | 0.59        | 0.21        |             |
| Dec                                                                             | -1.32       | -1.01       | -0.57       | -0.68       |             |
| Jan                                                                             | 0.49        | 0.08        | 0.21        | 0.18        |             |
| Feb                                                                             | -0.32       | -0.92       | -0.25       | 0.28        |             |
| Mar                                                                             | 0.96        | 0.23        | 0.15        | 0.84        |             |
| Apr                                                                             | 1.70        | 1.32        | 1.55        | 1.40        |             |
| May                                                                             | -0.26       | 0.76        | -0.21       | 0.01        |             |
| Jun                                                                             | 0.61        | 0.62        | 0.64        | -0.41       |             |
| <b>Seasonally Adjusted Series</b>                                               |             |             |             |             |             |
| Jul                                                                             | 1.22        | 0.91        | -0.32       | 0.60        | -0.35       |
| Aug                                                                             | 0.86        | 0.08        | 0.04        | -0.48       |             |
| Sep                                                                             | -0.21       | 0.41        | -0.06       | 0.26        |             |
| Oct                                                                             | 1.71        | -0.04       | 0.24        | 0.55        |             |
| Nov                                                                             | 1.52        | -0.25       | 0.85        | 0.45        |             |
| Dec                                                                             | -0.16       | 0.12        | 0.52        | 0.38        |             |
| Jan                                                                             | 0.30        | -0.07       | 0.11        | 0.13        |             |
| Feb                                                                             | 0.39        | -0.23       | 0.42        | 0.92        |             |
| Mar                                                                             | 0.78        | 0.05        | 0.00        | 0.70        |             |
| Apr                                                                             | 0.74        | 0.35        | 0.54        | 0.36        |             |
| May                                                                             | 0.06        | 1.06        | 0.07        | 0.30        |             |
| Jun                                                                             | 0.72        | 0.71        | 0.72        | -0.33       |             |

| <b>Table 19: CPI Food Month-on-Month % Change Original &amp; Seasonally Adjusted</b> |             |             |             |             |             |
|--------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Original Series</b>                                                               |             |             |             |             |             |
| <b>Period</b>                                                                        | <b>FY14</b> | <b>FY15</b> | <b>FY16</b> | <b>FY17</b> | <b>FY18</b> |
| Jul                                                                                  | 3.01        | 2.68        | 0.13        | 2.50        | 0.04        |
| Aug                                                                                  | 1.96        | 0.56        | 0.32        | -0.94       |             |
| Sep                                                                                  | -1.50       | 0.03        | -0.44       | 0.14        |             |
| Oct                                                                                  | 1.68        | -0.17       | 0.44        | 0.81        |             |
| Nov                                                                                  | 2.61        | -0.45       | 1.20        | 0.21        |             |
| Dec                                                                                  | -3.33       | -2.09       | -1.61       | -1.90       |             |
| Jan                                                                                  | -0.04       | -0.45       | -0.59       | -0.97       |             |
| Feb                                                                                  | -0.98       | -1.82       | -0.68       | 0.32        |             |
| Mar                                                                                  | 2.10        | 0.52        | 0.54        | 1.87        |             |
| Apr                                                                                  | 1.98        | 1.41        | 2.38        | 1.73        |             |
| May                                                                                  | -1.19       | 1.82        | -0.74       | -0.21       |             |
| Jun                                                                                  | 1.04        | 1.18        | 1.38        | -1.11       |             |
| <b>Seasonally Adjusted Series</b>                                                    |             |             |             |             |             |
| Jul                                                                                  | 1.42        | 1.14        | -1.30       | 1.12        | -1.24       |
| Aug                                                                                  | 1.24        | -0.06       | -0.24       | -1.48       |             |
| Sep                                                                                  | -1.39       | 0.12        | -0.35       | 0.29        |             |
| Oct                                                                                  | 1.55        | -0.28       | 0.34        | 0.71        |             |
| Nov                                                                                  | 2.68        | -0.39       | 1.26        | 0.22        |             |
| Dec                                                                                  | -1.03       | 0.18        | 0.56        | 0.19        |             |
| Jan                                                                                  | 0.06        | -0.25       | -0.25       | -0.48       |             |
| Feb                                                                                  | 0.39        | -0.49       | 0.57        | 1.49        |             |
| Mar                                                                                  | 1.28        | -0.28       | -0.24       | 1.07        |             |
| Apr                                                                                  | 0.67        | 0.05        | 0.97        | 0.29        |             |
| May                                                                                  | -0.79       | 2.17        | -0.44       | 0.11        |             |
| Jun                                                                                  | 1.04        | 1.15        | 1.30        | -1.22       |             |



Figure A2: Frequency Distribution of Price Changes of CPI Items, July 2017

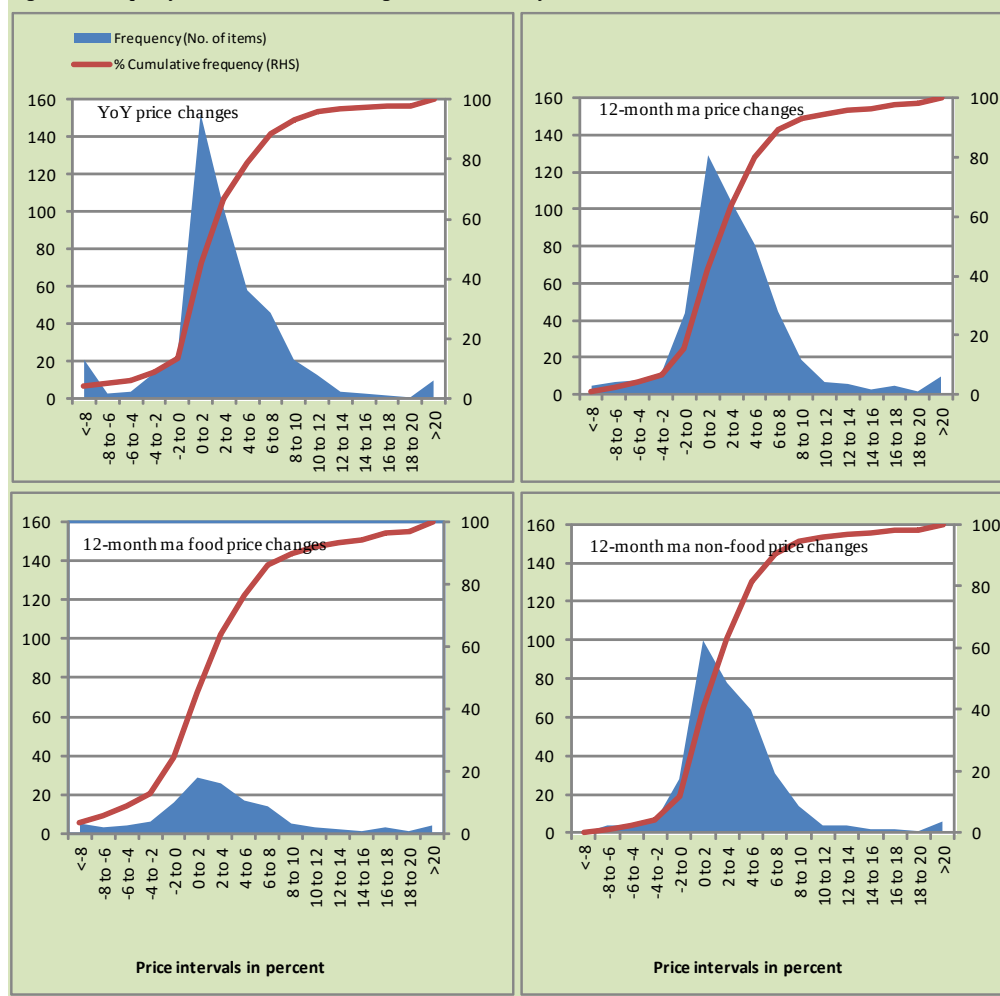


Figure A3: Frequency Distribution of Price Changes of WPI Commodities, July 2017

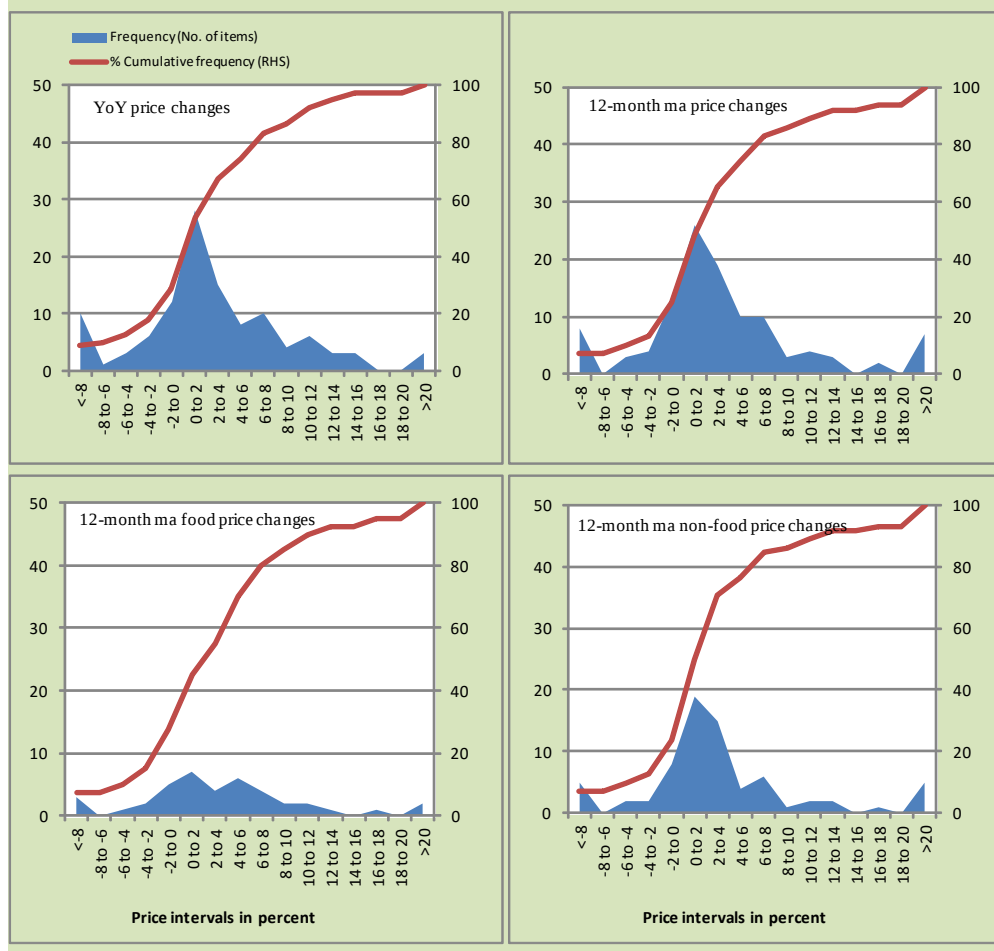
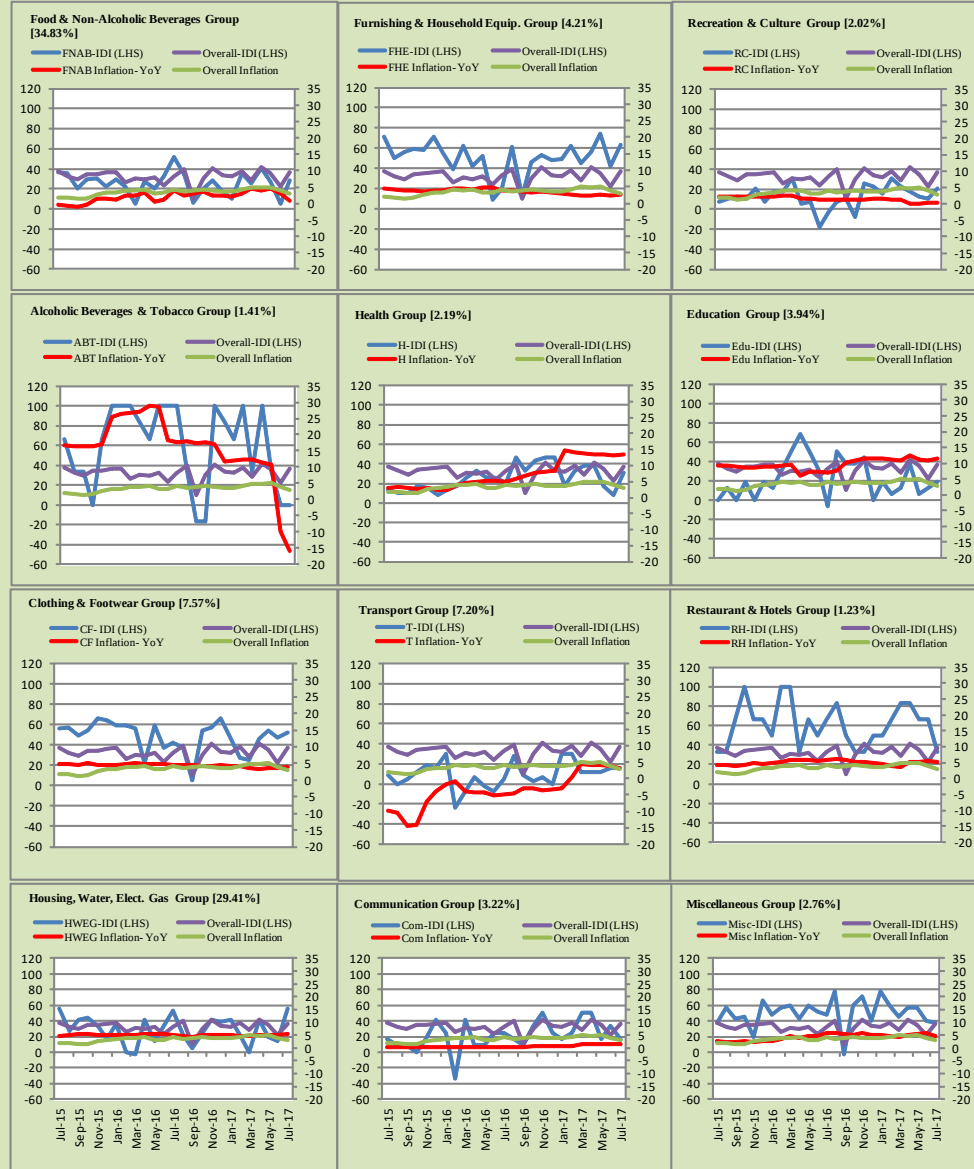


Figure A4: Group-wise/ Overall Inflation Diffusion Index (IDI) and respective/ overall YoY Inflation (percent)



Numbers in square brackets show the weights of respective groups in the CPI baskets.

## **Annexure B**

### **Technical Notes**

1. All the three measures of inflation, viz. CPI, WPI and SPI are computed by the following Laspeyres Index formula:

$$I_t = \sum_j w_0^j \left( \frac{P_t^j}{P_0^j} \right)$$

Where  $I_t$  is price index,  $w_0^j$  is weight of commodity  $j$  in the overall basket,  $P_t^j$  is price of commodity  $j$  in period  $t$  and  $P_0^j$  is its price in the base year.

2. Base year for all the indices is the year 2007-08.
3. CPI basket contains 487 consumers' goods; WPI basket contains 463 items; SPI contains 53 items.
4. YoY inflation is the percent change of an index in a given month over the index in the same month of the last year. It is computed as follows:

$$\pi_t = \left( \frac{I_t}{I_{t-12}} - 1 \right) \times 100$$

5. Period average inflation is the percent change of the average index during the period from July to the given month of a fiscal year over the average index during the corresponding period of the last year. It is computed as follows:

$$\bar{\pi}_t = \left( \frac{\sum_{i=0}^{t-v} I_{t-i}}{\sum_{i=0}^{t-12-v} I_{t-12-i}} - 1 \right) \times 100$$

Where  $v$  is the serial number of the month of July of current fiscal year in a given time series.

6. Monthly inflation is the percent change of an index in a given month over the index in the preceding month. It is computed as follows:

$$\pi_t = \left( \frac{I_t}{I_{t-1}} - 1 \right) \times 100$$

7. 12-month moving average inflation (Long-run trend inflation) is the percent change of 12-month moving average of a price index; it is computed as follows:

$$\tilde{\pi}_t = \left( \frac{\sum_{i=0}^{11} I_{t-i}}{\sum_{i=0}^{11} I_{t-12-i}} - 1 \right) \times 100$$

8. Core Inflation is defined as the persistent component of measured inflation that excludes volatile and controlled prices. It reflects the normal supply and demand conditions in the economy. Core inflation is computed by the following three methods:
- a) Non-food, Non-energy inflation (NFNE inflation); it is computed by excluding food group and energy items (kerosene oil, petrol, diesel, CNG, electricity and natural gas) from the CPI basket.
  - b) 20% trimmed-mean inflation; it is computed through the following steps:
    - i. All CPI items are arranged in ascending order according to YoY/12-month moving average/monthly/period average changes in their price indices in a given month.
    - ii. 20 percent of the items showing extreme changes are excluded with 10 percent of the items at the top of the list (corresponding to cumulative weight of 90% or more) and 10 percent of the items at the bottom of the list (corresponding to cumulative weight of 10 percent or less).
    - iii. The weighted mean of the changes in price indices of the rest of the items is core inflation.
  - c) Relatively Stable Component of CPI (RSC-CPI) developed by State Bank of Pakistan is a hybrid method based on permanent exclusion criteria. Volatile price items, to be excluded in the newly proposed measure RSC-CPI, are identified by analyzing the list and frequency of commodities that have been trimmed frequently in the past while computing monthly weighted trimmed mean measure. Commodities

that were trimmed out 13 and above times since July 2008 to February 2013 are selected for permanently excluding from the CPI basket. This newly developed component includes a mix of both food and non-food commodities that show persistent price behavior. Fifty Commodities included comprise relatively stable component (RSC-CPI) with a weight of 67.69. The detailed methodology of RSC-CPI and group wise items along their weights can be viewed at the following link;

<http://www.sbp.org.pk/publications/wpapers/2013/wp66.pdf>

9. Weighted contribution of different items (or sub-groups) to total inflation is worked out as below:

Let the overall index ( $I_t$ ) is the weighted average of price indexes of individual items or sub-groups ( $I_{it}$ ), i.e.

$$I_t = \sum_i w_i \cdot I_{it}$$

The weighted contribution of a single item (or a sub-group) to overall inflation is defined as below:

$$C_{it} = \alpha_{it-12} \cdot w_i \cdot \left( \frac{\pi_{it}}{\pi_t} \right)$$

Where  $C_{it}$ : Contribution of  $i^{\text{th}}$  item to the overall inflation

$$\alpha_{it-12} = \frac{I_{it-12}}{I_{t-12}}; \text{ i.e. ratio of item's index to overall index in the}$$

reference month

$w_i$ : Weights of  $i^{\text{th}}$  item

$\pi_{it}$ : Inflation of  $i^{\text{th}}$  item

$\pi_t$ : Overall inflation

10. Annualized rate of inflation (based on a month-on-month rate  $\pi$ ) is computed as follows

$$\text{Annualized } \pi = \left( \left( 1 + \frac{\pi}{100} \right)^{12} - 1 \right) \times 100$$

### Methodology for Estimating Inflation Diffusion Index for Pakistan

We constructed an index to measure the spread of inflation in the 487 commodities of the CPI basket. It is based on month-on-month (MoM) change in the prices of these commodities and can be obtained by estimating what is known as an ‘inflation diffusion index’ (IDI) as below:

$$\frac{\text{Number of Commodities with } \uparrow \text{ in MoM change} - \text{Number of Commodities with } \downarrow \text{ in MoM change}}{\text{Number of Commodities for which prices are reported}}$$

Thus, it is the difference between the share of items with increasing prices (i.e. depicting inflation) and the share of items with falling prices (i.e. depicting deflation) in CPI amongst the commodities for which prices have altered or remained constant<sup>1</sup>.

Based upon commodity level price data from July 2001 to February 2011 we computed inflation diffusion indices overall (general) CPI basket and for all groups in CPI basket (except House Rent Index being single item). A simple analysis<sup>2</sup> suggests that IDI is a leading indicator for Pakistan’s YoY inflation.

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<sup>1</sup> We do not observe the prices of certain commodities (like the seasonal items) during certain periods of time. To calculate the inflation diffusion index we consider the commodities for which prices have been reported (irrespective of changed or not) during the month under review.

<sup>2</sup> Formal test shows one way ‘Granger’ causality from IDI to YoY inflation.