

Inflation Monitor

August 2017



State Bank of Pakistan

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Contents

	Page
1. Inflation in Brief	1
2. City- wise Inflation	7
3. Income Group- wise Inflation	8
4. Weighted Contribution	10
5. Inflation Diffusion Index	11
6. Domestic Commodity Prices	12
7. Global Commodity Prices	12
8. Seasonal Adjustment in CPI	13
Annexure A	
Table A1 CPI Inflation by Groups	17
Table A2 Distribution of Price Changes (YoY) of CPI Basket	17
Table A3 Top and Bottom 15 Contributors to CPI Inflation (YoY)	18
Table A3.1 Top and Bottom 15 Contributors to CPI Inflation (MoM)	19
Table A3.2 Top Fifteen Contributors to CPI Inflation (YoY)	20
Table A3.3 Top Ten Contributors to CPI Food Inflation (YoY)	21
Table A3.4 Top Ten Contributors to CPI Non-Food Inflation (YoY)	22
Table A4 Distribution of Price Changes (YoY) - Selected CPI Items	23
Table A5 City-wise CPI Inflation by Income Groups	24
Table A6 City- wise CPI Inflation (YoY)	25
Table A7 Income Group-wise Inflation	26
Table A8 SPI Item-wise Price Movements	27
Table A9 Distribution of Price Changes (YoY)-WPI Items	28
Table A10 Consumer Price Index Numbers by Major Groups and Composite Commodities	29-30
Table A11 Wholesale Price Index Numbers by Major Groups and Composite Commodities	31-32
Table A12 Price Indices	33
Table A13 International Commodity Prices/ Indices	34
Table A14 CPI Data Series- Original and Seasonally Adjusted	35
Table A15 CPI Food Data Series- Original and Seasonally Adjusted	36
Table A16 CPI Monthly & Average Seasonal Factors	37
Table A17 CPI Food Monthly & Average Seasonal Factors	37
Table A18 CPI Month-on-Month % Change- Original & Seasonally Adjusted	38
Table A19 CPI Food Month-on-Month % Change- Original & Seasonally Adjusted	39
Figure A1 CPI Non-food Inflation	40
Figure A2 Frequency Distribution of Price Changes of CPI Items	41
Figure A3 Frequency Distribution of Price Changes of WPI Commodities	42
Figure A4 Group- wise/ overall Inflation Diffusion Index and Respective/ Overall YoY Inflation	43
Annexure B Technical Notes	44-47

Team

- Naseer Ahmad Additional Director
naseer.ahmed@sbp.org.pk
- Muhammad Abdus Salam Joint Director
muhammad.abdussalam@sbp.org.pk

Review

Inflation in Brief

1. Headline CPI inflation (2007-08=100) is recorded at level of 3.4 percent on year-on-year basis in August 2017 as compared to 2.9 percent in the previous month and 3.6 percent in the corresponding month of last year.
2. CPI inflation on month-on-month basis is recorded at level of 0.2 percent in August 2017 as compared to 0.3 percent previous month and -0.3 percent during the corresponding month of last year. Seasonally adjusted month-on-month CPI inflation is recorded at 0.09 percent in August 2017 compared to -0.40 percent in the previous month.
3. Core inflation (trimmed) on year-on-year basis is recorded at 4.2 percent in August 2017 as compared to 4.0 percent in the previous month and 3.5 percent during corresponding month of last year.
4. On month-on-month basis, the Core inflation (trimmed) is recorded at 0.1 percent in August 2017 as compared to 0.4 percent in the previous month and at level 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 5.5 percent in August 2017 as compared to 5.6 percent in the previous month. It was 4.6 percent in the corresponding month of last year.
6. Core NFNE inflation on month-on-month basis recorded at 0.1 percent in August 2017 compared to 0.7 percent in the previous month. Core NFNE inflation was 0.2 percent in the corresponding month of last year.

7. WPI inflation on year-on-year basis recorded at 1.0 percent in August 2017 as compared to 0.7 percent in the previous month and 3.5 percent during the corresponding month of last year.
8. WPI inflation on month-on-month basis recorded at 0.3 percent in August 2017 as compared to -0.2 percent in the previous month and at zero level in the corresponding month of last year.
9. SPI inflation on year-on-year basis recorded at 0.5 percent in August 2017 as compared to 0.2 percent in the previous month. It was 2.0 percent in the corresponding month of last year.
10. SPI inflation on month-on-month basis recorded at 0.2 percent in August 2017 as compared to -0.6 percent in the previous month. It was -0.1 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 August 2017 are described below:

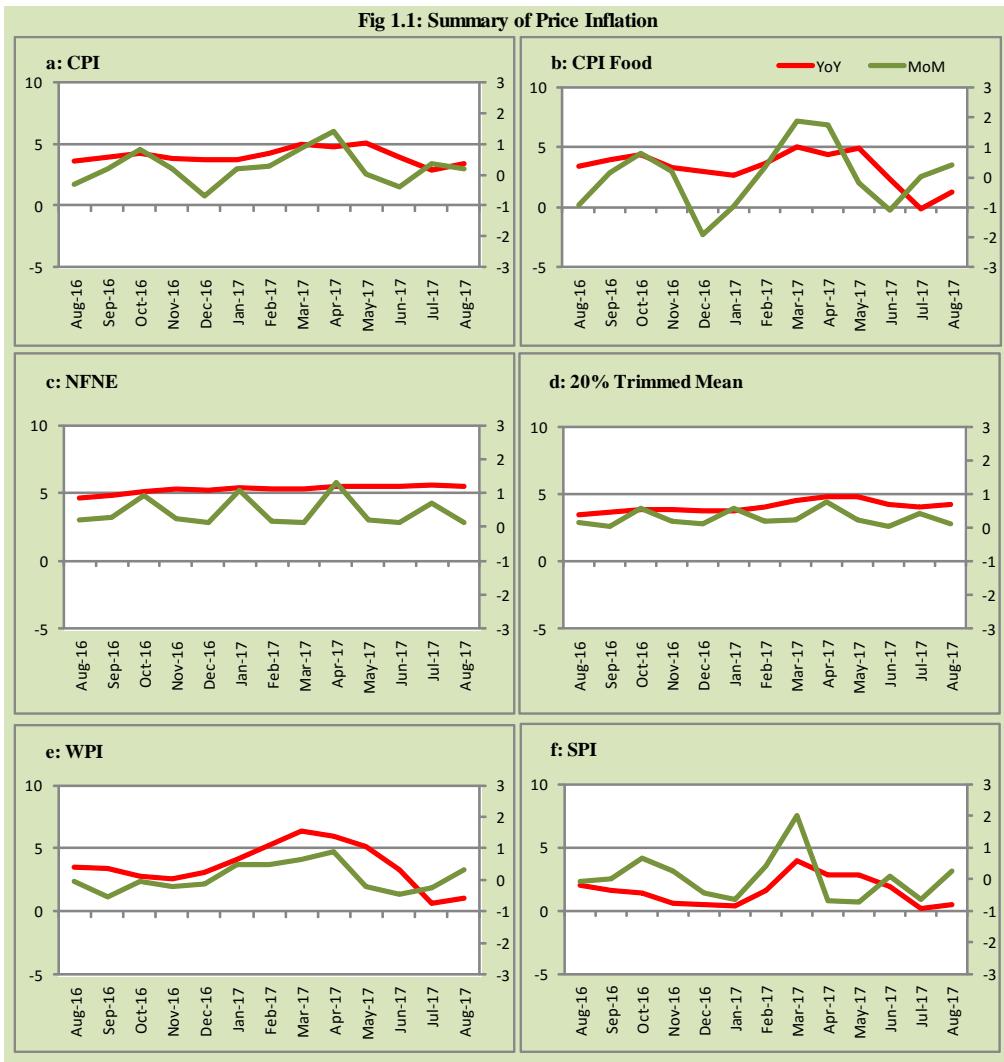
- Core RSC inflation on year-on-year basis is recorded at 4.3 percent in August 2017 as compared to 4.4 percent in the previous month and 4.8 percent during the corresponding month of last year.

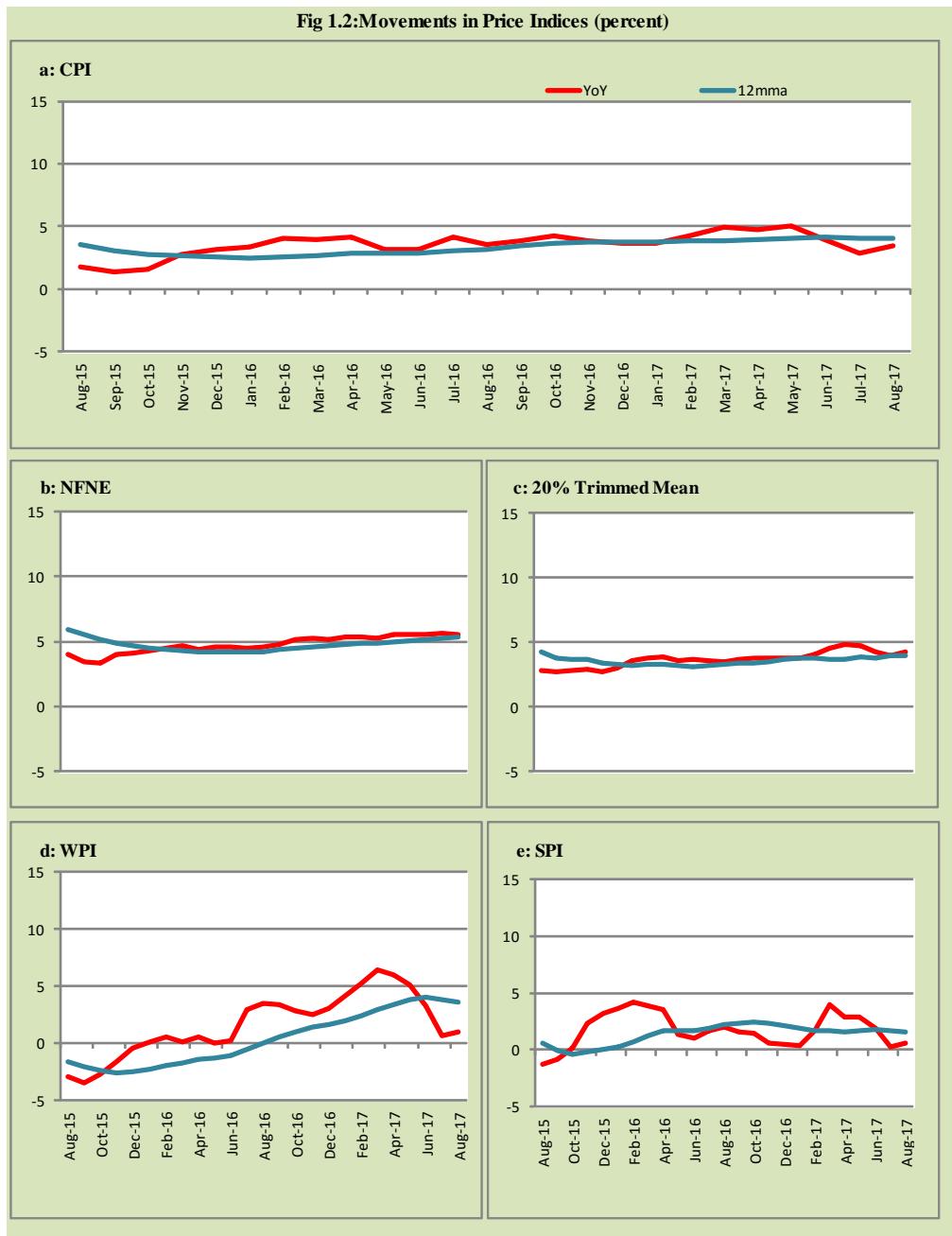
11. Core RSC inflation on month-on-month basis is recorded at 0.2 percent in August 2017 compared to 0.4 percent in the previous month and it was at level in the corresponding month of last year.

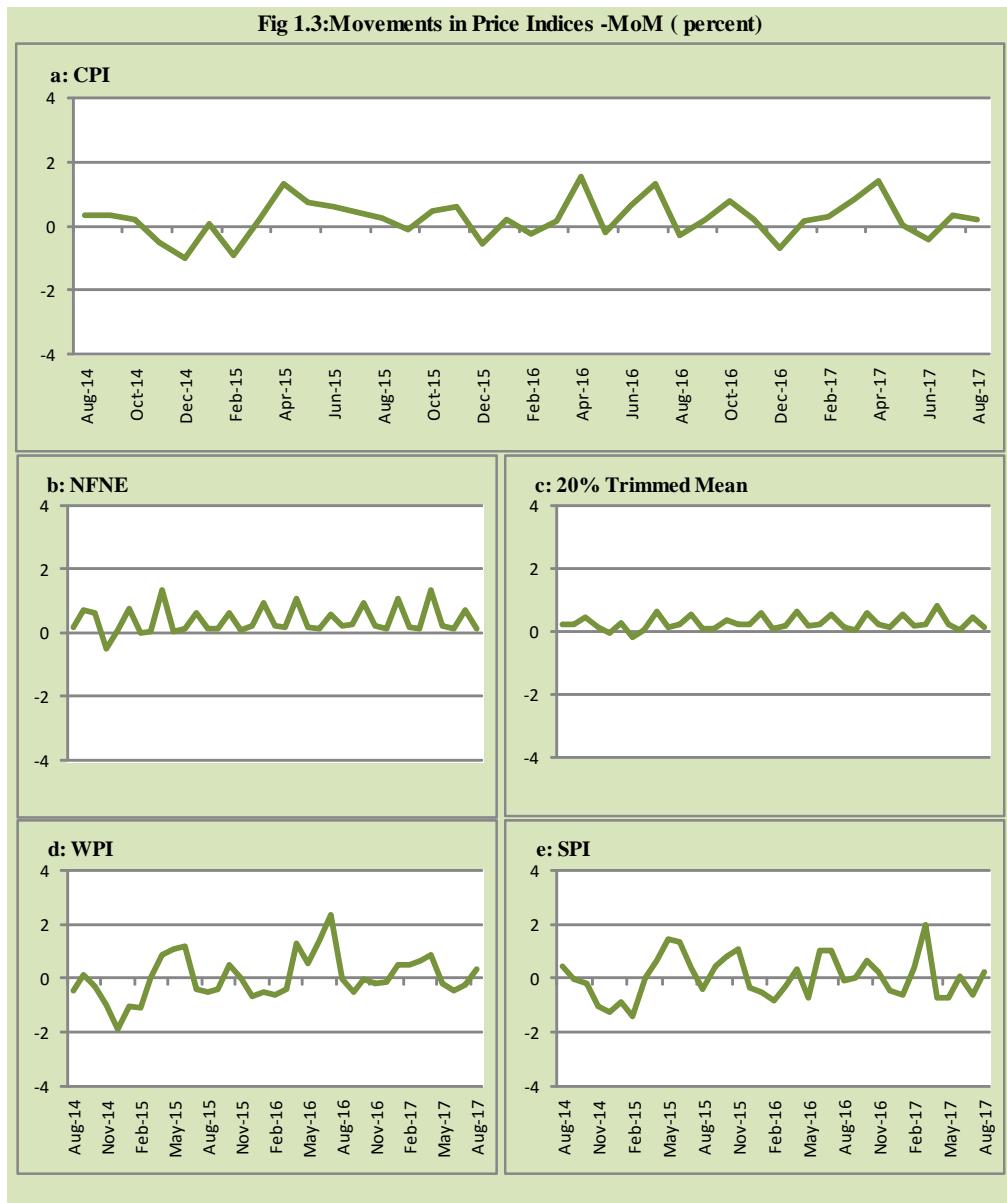
Monthly CPI, WPI and SPI data is summarized in the following table.

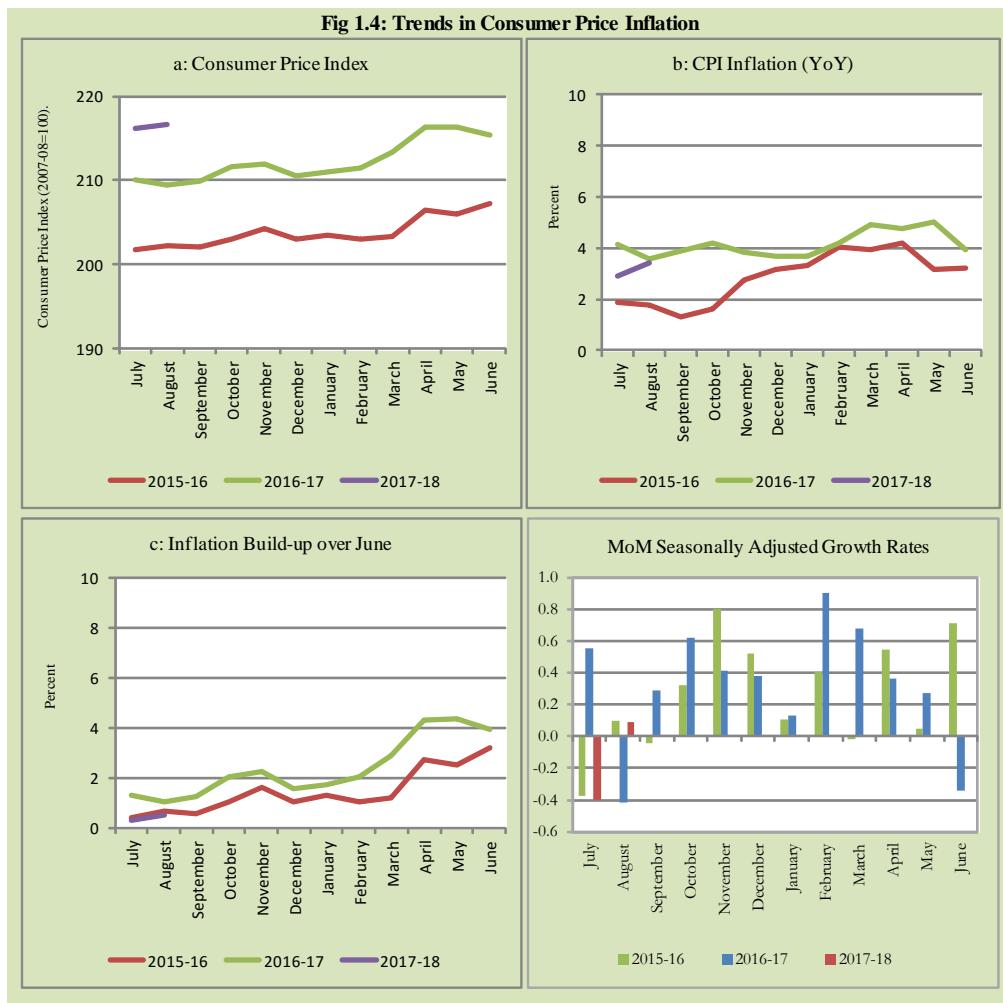
Period	Table 1.1 Inflation Trends (percent) (Base 2007- 08 = 100)										WPI Inflation	SPI*** Inflation		
	CPI Inflation				Core Inflation									
	General		Food		Non-food		NFNE*		Trimmed		RSC**			
	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM
Aug-16	3.6	-0.3	3.4	-0.9	3.7	0.2	4.6	0.2	3.5	0.1	4.8	0.2	3.5	0.0
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
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
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
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
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
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
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
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
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
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
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
Aug-17	3.4	0.2	1.2	0.4	5.0	0.1	5.5	0.1	4.2	0.1	4.3	0.2	1.0	0.3

* NFNE is Non-food non-energy ** Relatively Stable Component of CPI *** SPI for all income groups combined









2. City wise Inflation

CPI Inflation on year-on-year basis in federal and provincial capitals of Pakistan showed mixed trend during August 2017. Among these five cities, the lowest inflation was observed in Karachi at 1.7 percent while the highest inflation was observed in Lahore at 5.1 percent (Table A6 of annexure-A).

Table 2.1 City-wise Inflation of Selected Cities (percent)

	Aug-16		Jul-17		Aug-17	
	MoM	YoY	MoM	YoY	MoM	YoY
Overall CPI	-0.3	3.6	0.3	2.9	0.2	3.4
Islamabad	-0.3	2.3	1.0	4.7	0.0	5.0
Karachi	-0.4	3.3	0.0	1.3	0.0	1.7
Lahore	-0.7	1.2	0.5	3.7	0.6	5.1
Peshawar	-0.4	2.0	0.4	1.3	0.3	2.1
Quetta	-0.7	3.9	0.8	2.1	0.1	2.9

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 August 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 August 2017 (Table A7 of annexure-A).

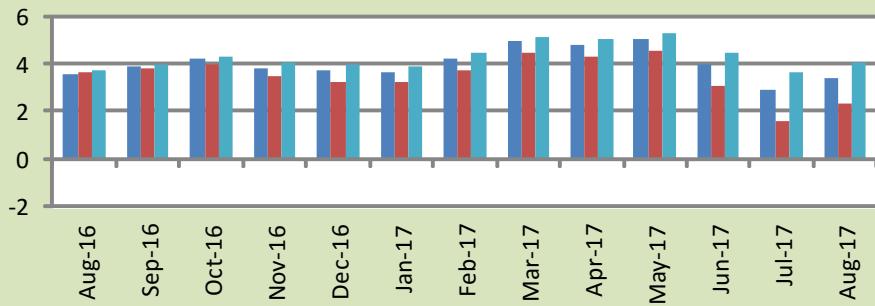
Table 3.1 Income Group- wise Inflation (YoY) (percent)

Income Groups	General			Food			Non-food		
	Aug-16	Jul-17	Aug-17	Aug-16	Jul-17	Aug-17	Aug-16	Jul-17	Aug-17
All Groups Combined	3.6	2.9	3.4	3.4	-0.1	1.2	3.7	5.1	5.0
Up to Rs. 8,000	3.6	1.6	2.4	3.4	-1.1	0.2	3.9	4.9	5.0
Rs. 8,001- 12,000	3.9	2.0	2.7	3.4	-0.7	0.6	4.4	4.9	4.9
Rs. 12,001- 18,000	3.2	2.2	2.8	3.5	-0.6	0.7	3.0	4.9	4.9
Rs. 18,001- 35,000	3.7	2.4	2.9	3.5	-0.4	0.9	3.9	4.7	4.6
Above Rs. 35,000	3.7	3.6	4.0	3.3	0.7	2.0	3.9	5.2	5.0

Fig 3.1: Income Group- wise Inflation

a: CPI Overall Inflation (YoY)

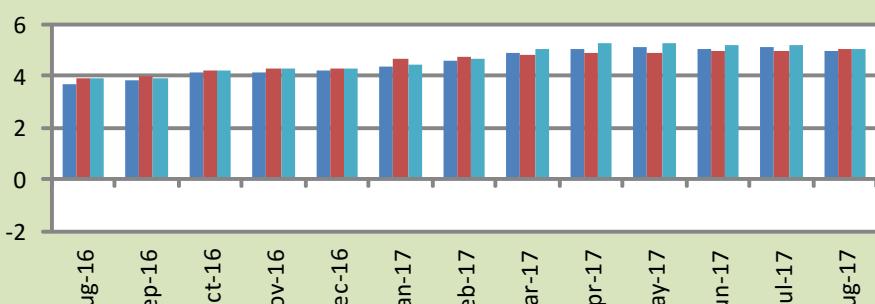
■ All Groups combined ■ Upto Rs. 8,000 ■ Above Rs. 35,000



b: CPI Food Inflation (YoY)



c: CPI Non-Food Inflation (YoY)



4. Weighted Contribution

The weighted contribution of food group in the overall inflation increased to 15.23 percent during August 2017 from -1.32 percent in previous month. It was 39.62 percent in August 2016.

The weighted contribution of non-food group decreased to 84.76 percent in August 2017 from 101.32 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
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
Aug-17	15.23	9.58	41.22	4.54	13.48	15.94

5. Inflation Diffusion Index

	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17
General	39.7	10.3	30.1	41.1	33.5	32.3	38.0	28.5	41.6	35.3	22.4	36.8	26.8
Food & Non-Alcoholic Beverages	34.2	6.1	20.0	28.2	17.9	10.5	35.1	25.7	40.4	27.1	5.3	28.7	17.5
Alcoholic Beverages & Tobacco	33.3	-16.7	-16.7	100.0	83.3	66.7	100.0	33.3	100.0	33.3	0.0	0.0	-50.0
Clothing & Footwear	37.3	5.1	54.2	57.6	66.1	45.8	27.1	25.4	45.8	54.2	47.5	52.5	49.2
Housing, Water, Elect, Gas & other Fuels	22.2	5.6	25.0	41.7	38.9	41.7	22.2	0.0	41.7	19.4	13.9	55.6	27.8
Furnishing & Household Equip. Maintenance etc	60.9	11.6	46.4	53.6	47.8	49.3	62.3	44.9	56.5	73.9	42.0	63.8	47.8
Health	46.2	33.3	43.6	46.2	46.2	17.9	33.3	38.5	38.5	17.9	7.7	30.8	20.5
Transport	27.9	9.3	2.3	7.0	0.0	30.2	30.2	11.6	11.6	11.6	16.3	16.3	16.3
Communication	16.7	8.3	33.3	50.0	25.0	16.7	25.0	50.0	50.0	16.7	33.3	16.7	0.0
Recreation & Culture	7.7	10.3	-7.7	25.6	23.1	15.4	30.8	23.1	17.9	12.8	10.3	20.5	23.1
Education	50.0	37.5	37.5	43.8	0.0	18.8	6.3	12.5	37.5	6.3	12.5	18.8	6.3
Restaurant & Hotels	83.3	50.0	33.3	33.3	50.0	50.0	66.7	83.3	83.3	66.7	66.7	33.3	0.0
Miscellaneous	77.1	-2.9	60.0	71.4	40.0	77.1	60.0	45.7	57.1	57.1	40.0	37.1	37.1
NFNE	42.3	11.5	34.6	45.6	37.6	39.1	37.6	28.1	40.2	38.5	28.4	42.3	33.4

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	Aug-16		Jul-17		Aug-17	
			YoY	MoM	YoY	MoM	YoY	MoM
1	Wheat	10 Kg	-0.28	1.41	0.18	-0.74	-1.40	-0.19
2	Wheat Flour Bag	10 Kg	-0.46	0.14	-2.21	-1.09	-3.01	-0.68
3	Rice Basmati Sup. Qlty.	Kg	-7.30	0.35	11.95	1.05	12.10	0.48
4	Pulse Masoor (Washed)	Kg	9.18	0.39	-16.34	-0.10	-18.10	-1.71
5	Pulse Moong (Washed)	Kg	-1.89	-1.59	-18.01	0.00	-18.21	-1.84
6	Pulse Mash (Washed)	Kg	45.96	0.24	-24.96	-1.06	-27.13	-2.66
7	Pulse Gram	Kg	40.41	2.59	-16.15	-2.82	-19.87	-1.96
8	Vegetable Ghee (Loose)	Kg	-1.40	0.05	5.19	0.07	5.09	-0.05
9	Sugar Refined	Kg	8.74	6.63	-15.80	-1.97	-15.56	6.93
10	Milk Fresh (Unboiled)	Ltr	4.39	0.34	3.81	0.68	3.56	0.10
11	Tea- Tapal Danedar	200 Gm	5.90	0.00	10.58	0.85	9.97	-0.55
12	Beef With Bone Av. Qlty.	Kg	3.66	0.52	5.58	0.20	7.10	1.96
13	Mutton Av. Qlty.	Kg	6.23	0.25	7.01	0.22	8.70	1.83
14	Chicken Farm Broiler (Live)	Kg	-17.02	-14.77	3.04	4.33	14.15	-5.58
15	Eggs Farm	Doz	-1.82	8.02	8.35	3.75	2.53	2.21
16	Potatoes	Kg	32.85	4.24	12.24	4.18	9.74	1.91
17	Onion	Kg	-31.67	-13.62	-7.03	10.00	44.09	33.88
18	Tomatoes	Kg	2.52	-13.87	-45.10	-2.43	-19.85	25.75
19	Ginger	Kg	-30.07	1.02	17.33	9.18	31.00	12.79
20	Garlic	Kg	78.93	9.84	-16.71	-4.19	-25.55	-1.82

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
Overall	-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 and August, 2017 are not available till date

Source: IMF

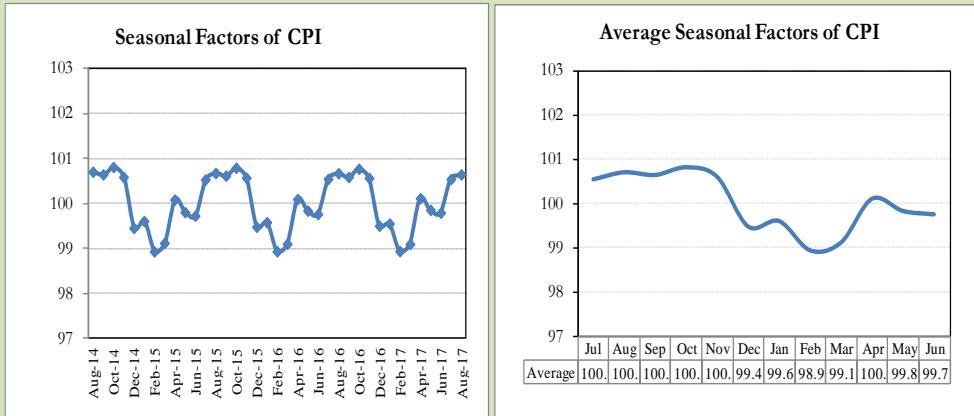
8. Seasonal Adjustment in CPI

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 August 2017 has been used for seasonal adjustment analysis. The seasonal analysis is carried out without taking trading-day or Islamic calendar month's effects.

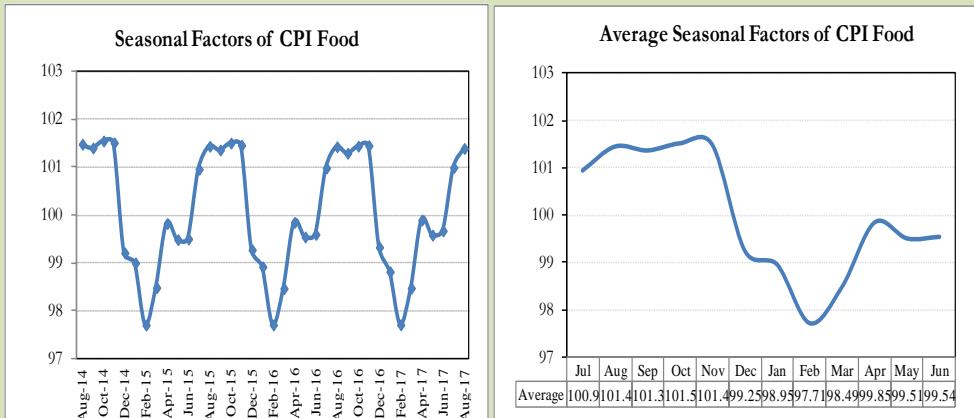
Figure 8.1 reveals that seasonality in CPI has been increasing over the period of last four years. Average seasonal factors reveal strong seasonality during the calendar year. There is an upward seasonality during the months from July to November and downward seasonality in the remaining months of the 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

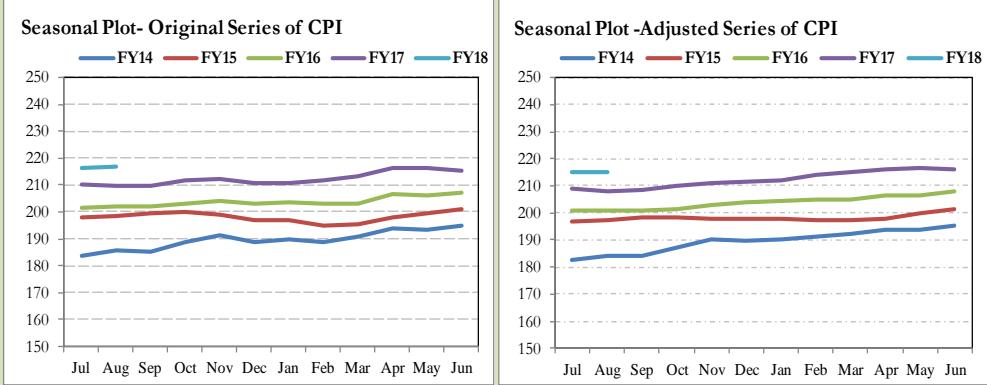
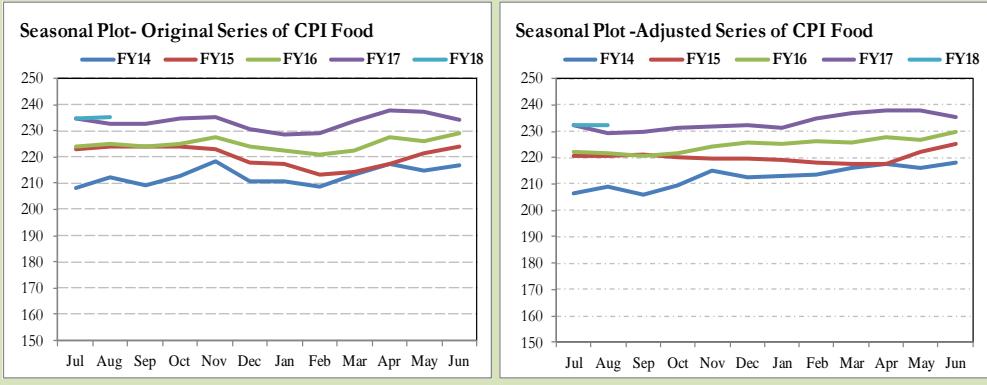


Fig. 8.4 Seasonal Plots of CPI (Food)



Inflation Monitor, August 2017

Seasonally adjusted CPI for August 2017 stood at 215.21 against 216.61 in original series showing a decrease of 1.44 on account of adjustment of upward seasonality in August 2017.

Seasonally adjusted CPI food group for August 2017 stood at 232.14 against 235.38 in original series showing a decrease of 3.24 on account of adjustment of upward seasonality in August 2017.

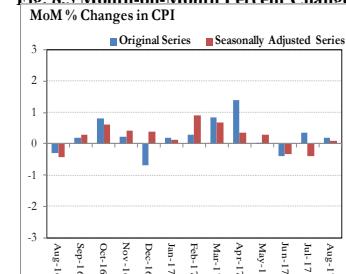
Month-on-month change of seasonally adjusted CPI series stood at 0.09% reflecting an increase during August 2017 over previous month and an increase of 0.19% in original series.

Month-on-month change of seasonally adjusted CPI food group series stood at -0.01% reflecting an increase during August 2017 over previous month and an increase of 0.39% 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 August 2017 (corresponding to the seasonally adjusted month-on-month rate) is 1.12 percent.

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



MoM Annualize % Change in CPI

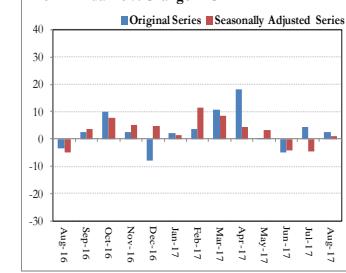
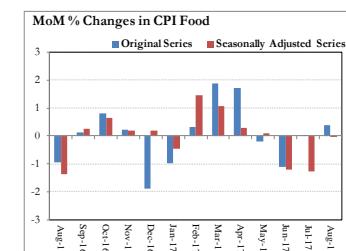
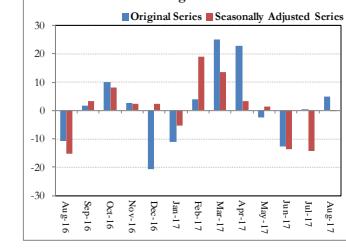


Fig. 8.6 Month-on-Month Percent Changes in CPI Food



MoM Annualize % Change in CPI Food



Annexure A

Table A1: CPI Inflation by Groups (percent)

	Weights	MoM change			YoY change		
		Aug-16	Jul-17	Aug-17	Aug-16	Jul-17	Aug-17
I. Food Group	37.5	-0.9	0.0	0.4	3.4	-0.1	1.2
Food & Non-Alcoholic Beverages	34.8	-1.1	0.4	0.4	2.4	0.7	2.2
Alcoholic Beverages & Tobacco	1.4	0.2	-5.5	-0.1	17.9	-15.9	-16.2
Restaurant & Hotels	1.2	0.5	0.2	0.0	6.2	5.3	4.8
II. Non-Food Group	62.5	0.2	0.6	0.1	3.7	5.1	5.0
Clothing & Footwear	7.6	0.2	0.3	0.2	4.5	3.9	3.9
Housing, Water, Elect, Gas & other Fuels	29.4	0.0	1.1	0.0	4.8	5.3	5.3
Furnishing & Household Equip. Maintenance etc	4.2	0.3	0.4	0.1	3.8	2.7	2.6
Health	2.2	0.8	0.1	0.1	5.8	13.3	12.5
Transport	7.2	0.2	-0.4	-0.3	-4.4	3.2	2.7
Communication	3.2	0.0	0.0	0.1	0.4	1.5	1.6
Recreation & Culture	2.0	0.1	0.0	0.1	1.4	0.2	0.3
Education	3.9	0.5	0.1	0.0	7.6	11.4	10.9
Miscellaneous	2.8	0.7	0.2	0.5	6.0	4.8	4.7
Headline	100.0	-0.3	0.3	0.2	3.6	2.9	3.4

Table A2: Distribution of Price changes (YoY) of CPI basket

Groups	% changes	Total number of items	No. of items in each inflation range								
			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)		
			Aug-17	Aug-16	Aug-17	Aug-16	Aug-17	Aug-16	Aug-17	Aug-16	
I. Food Group	1.2	128	128	33	45	55	47	19	24	21	12
Food & Non-Alcoholic Beverages	2.2	116	116	33	42	53	43	16	19	14	12
Alcoholic Beverages & Tobacco	-16.2	6	6	0	3	0	2	0	1	6	0
Restaurant & Hotels	4.8	6	6	0	0	2	2	3	4	1	0
II. Non-Food Group	5.0	348	348	95	83	151	176	80	72	22	17
Clothing & Footwear	3.9	59	59	6	9	33	33	20	17	0	0
Housing, Water, Elect, Gas & other Fuels	5.3	36	36	8	11	9	12	16	12	3	1
Furnishing & Household Equip. Maintenance etc	2.6	69	69	4	6	51	52	14	11	0	0
Health	12.5	39	39	12	8	17	18	4	7	6	6
Transport	2.7	43	43	29	26	8	12	5	4	1	1
Communication	1.6	12	12	5	3	4	4	2	3	1	2
Recreation & Culture	0.3	39	39	23	16	11	18	2	4	3	1
Education	10.9	16	16	5	1	3	5	7	6	1	4
Miscellaneous	4.7	35	35	3	3	15	22	10	8	7	2
Overall	3.4	476	476	128	128	206	223	99	96	43	29

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

Table A3: Top and Bottom 15 Contributors to CPI Inflation (YoY) in August 2017

Top 15 Contributors		Weights	<u>YoY Change</u>		Weighted Contribution
Items/ Contributors			Aug-16	Aug-17	
Ranked by Weighted Contribution					
1	House Rent	21.81	5.79	7.19	39.21
2	Education	3.94	7.62	10.85	13.48
3	Milk Fresh	6.68	4.23	3.62	9.02
4	Fresh Fruits	1.86	-1.81	13.65	8.39
5	Meat	2.43	4.53	7.65	6.86
6	Onion	0.53	-31.67	44.08	5.56
7	Drug Medicine	1.27	4.96	18.53	5.13
8	Rice	1.58	-8.21	13.95	4.93
9	Chicken	1.36	-17.02	14.15	4.24
10	Tea	0.84	1.42	13.14	3.94
11	Motor Fuel	3.03	-11.39	6.41	3.68
12	Tailoring	0.88	7.17	8.58	3.17
13	Personal Care	1.49	3.92	6.12	2.77
14	Ready Made Food	1.23	6.20	4.77	2.18
15	Vegetable Ghee	2.07	-2.39	4.42	1.76
Total		51.02			114.29
Bottom 15 Contributors					
1	Cigarettes	1.39	17.98	-16.40	-11.72
2	Sugar	1.04	8.74	-15.56	-5.77
3	Fresh Vegetables	1.68	11.47	-6.26	-4.16
4	Wheat Flour	4.16	0.44	-2.90	-3.53
5	Pulse Mash (Washed)	0.21	45.96	-27.13	-2.97
6	Tomatoes	0.44	2.52	-19.85	-2.48
7	Pulse Gram	0.24	40.41	-19.87	-2.26
8	Pulse Moong	0.23	-1.90	-18.21	-1.74
9	Pulse Masoor	0.27	9.41	-18.38	-1.49
10	Besan	0.15	38.31	-14.81	-1.02
11	Gram Whole	0.16	47.70	-5.20	-0.36
12	Text Books	0.57	0.62	-1.51	-0.35
13	Spices	0.54	1.71	-1.50	-0.28
14	Wheat	0.35	-0.28	-1.40	-0.13
15	Fish	0.30	3.55	-1.12	-0.10
Total		11.74			-38.38

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

Top 15 Contributors Items/ Contributors	Weights	MoM Change		Weighted Contribution
		Jul-17	Aug-17	
Ranked by Weighted Contribution				
1 Onion	0.53	9.99	33.88	78.31
2 Tomatoes	0.44	-2.43	25.74	34.93
3 Sugar	1.04	-1.98	6.93	34.54
4 Meat	2.43	0.21	1.92	30.90
5 Rice	1.58	0.63	1.60	10.81
6 Fresh Vegetables	1.68	9.31	0.85	8.96
7 Milk Fresh	6.68	0.73	0.15	6.36
8 Personal Care	1.49	0.30	0.73	5.90
9 Potatoes	0.47	4.18	1.91	5.59
10 Eggs	0.46	3.75	2.22	4.64
11 Tailoring	0.88	0.27	0.45	3.07
12 Spices	0.54	0.02	0.93	2.84
13 Woolen Cloth	0.88	0.09	0.46	2.44
14 Construction Wage Rate	0.33	0.95	1.17	2.24
15 Personal Equipments	0.84	0.05	0.35	2.15
Total	20.29			233.70
Bottom 15 Contributors				
1 Fresh Fruits	1.86	-6.67	-5.71	-72.02
2 Chicken	1.36	4.34	-5.58	-34.41
3 Wheat Flour	4.16	-1.05	-0.76	-15.47
4 Motor Fuel	3.03	-1.24	-1.08	-11.31
5 Tea	0.84	0.50	-0.94	-5.45
6 Pulse Mash (Washed)	0.21	-1.06	-2.66	-3.72
7 Pulse Gram	0.24	-2.82	-1.96	-3.10
8 Pulse Moong	0.23	0.00	-1.84	-2.49
9 Pulse Masoor	0.27	-0.10	-2.03	-2.34
10 Besan	0.15	-0.64	-1.66	-1.68
11 Cigarettes	1.39	-5.61	-0.12	-1.26
12 Cooking Oil	1.75	0.35	-0.12	-0.67
13 Dry Fruits	0.25	0.08	-0.38	-0.61
14 Wheat Product	0.10	-0.19	-0.64	-0.31
15 Wheat	0.35	-0.74	-0.19	-0.30
Total	16.20			-155.13

Table A3.2: Top Fifteen Contributors to CPI Inflation (YoY) in August 2017

Items/ Contributors	Weights	YoY Change		Weighted Contribution
		Aug-16	Aug-17	
A. Ranked by Percentage Change				
1 Onion	0.53	-31.67	44.08	5.56
2 Drug Medicine	1.27	4.96	18.53	5.13
3 Chicken	1.36	-17.02	14.15	4.24
4 Rice	1.58	-8.21	13.95	4.93
5 Fresh Fruits	1.86	-1.81	13.65	8.39
6 Tea	0.84	1.42	13.14	3.94
7 Education	3.94	7.62	10.85	13.48
8 Potatoes	0.47	32.85	9.74	1.55
9 Tailoring	0.88	7.17	8.58	3.17
10 Doctor (Mbbs) Clinic Fee	0.59	7.25	7.87	1.69
11 Meat	2.43	4.53	7.65	6.86
12 House Rent	21.81	5.79	7.19	39.21
13 Cleaning & Laundering	0.21	5.84	7.13	0.53
14 Medical Equipments	0.01	4.42	6.59	0.02
15 Construction Wage Rate	0.33	6.69	6.56	0.70
Total	38.13			99.40
B. Ranked by Weights				
1 House Rent	21.81	5.79	7.19	39.21
2 Milk Fresh	6.68	4.23	3.62	9.02
3 Electricity	4.40	0.00	0.00	0.00
4 Wheat Flour	4.16	0.44	-2.90	-3.53
5 Education	3.94	7.62	10.85	13.48
6 Communication & Apparatus	3.15	0.25	1.53	0.87
7 Motor Fuel	3.03	-11.39	6.41	3.68
8 Transport Services	2.70	-2.00	0.10	0.07
9 Meat	2.43	4.53	7.65	6.86
10 Vegetable Ghee	2.07	-2.39	4.42	1.76
11 Fresh Fruits	1.86	-1.81	13.65	8.39
12 Cooking Oil	1.75	-5.57	3.29	1.08
13 Cotton Cloth	1.73	5.09	3.22	1.75
14 Fresh Vegetables	1.68	11.47	-6.26	-4.16
15 Rice	1.58	-8.21	13.95	4.93
Total	63.00			83.40
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 3.4 percent in August, 2017.				

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

Items/ Contributors	Weights	YoY Change		Weighted Contribution
		Aug-16	Aug-17	
A. Ranked by Weighted Contribution				
1 Milk Fresh	6.68	4.23	3.62	9.02
2 Fresh Fruits	1.86	-1.81	13.65	8.39
3 Meat	2.43	4.53	7.65	6.86
4 Onion	0.53	-31.67	44.08	5.56
5 Rice	1.58	-8.21	13.95	4.93
6 Chicken	1.36	-17.02	14.15	4.24
7 Tea	0.84	1.42	13.14	3.94
8 Ready Made Food	1.23	6.20	4.77	2.18
9 Vegetable Ghee	2.07	-2.39	4.42	1.76
10 Potatoes	0.47	32.85	9.74	1.55
Total	19.06			48.42
B. Ranked by Percentage Change				
1 Onion	0.53	-31.67	44.08	5.56
2 Chicken	1.36	-17.02	14.15	4.24
3 Rice	1.58	-8.21	13.95	4.93
4 Fresh Fruits	1.86	-1.81	13.65	8.39
5 Tea	0.84	1.42	13.14	3.94
6 Potatoes	0.47	32.85	9.74	1.55
7 Meat	2.43	4.53	7.65	6.86
8 Honey	0.04	2.71	6.25	0.12
9 Ready Made Food	1.23	6.20	4.77	2.18
10 Vegetable Ghee	2.07	-2.39	4.42	1.76
Total	12.42			39.52
C. Ranked by Weights				
1 Milk Fresh	6.68	4.23	3.62	9.02
2 Wheat Flour	4.16	0.44	-2.90	-3.53
3 Meat	2.43	4.53	7.65	6.86
4 Vegetable Ghee	2.07	-2.39	4.42	1.76
5 Fresh Fruits	1.86	-1.81	13.65	8.39
6 Cooking Oil	1.75	-5.57	3.29	1.08
7 Fresh Vegetables	1.68	11.47	-6.26	-4.16
8 Rice	1.58	-8.21	13.95	4.93
9 Cigarettes	1.39	17.98	-16.40	-11.72
10 Chicken	1.36	-17.02	14.15	4.24
Total	24.98			16.86

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 1.2 percent in August, 2017.

Table A3.4: Top Ten Contributors to CPI Non-food Inflation (YoY) in August 2017

Items/ Contributors	Weights	<u>YoY Change</u>		Weighted Contribution
		Aug-16	Aug-17	
A. Ranked by Weighted Contribution				
1 House Rent	21.81	5.79	7.19	39.21
2 Education	3.94	7.62	10.85	13.48
3 Drug Medicine	1.27	4.96	18.53	5.13
4 Motor Fuel	3.03	-11.39	6.41	3.68
5 Tailoring	0.88	7.17	8.58	3.17
6 Personal Care	1.49	3.92	6.12	2.77
7 Cotton Cloth	1.73	5.09	3.22	1.75
8 Doctor (Mbbs) Clinic Fee	0.59	7.25	7.87	1.69
9 Woolen Cloth	0.88	3.62	5.37	1.61
10 Ready Made Garments	0.97	5.45	3.95	1.28
Total	36.60			73.76
B. Ranked by Percentage Change				
1 Drug Medicine	1.27	4.96	18.53	5.13
2 Education	3.94	7.62	10.85	13.48
3 Tailoring	0.88	7.17	8.58	3.17
4 Doctor (Mbbs) Clinic Fee	0.59	7.25	7.87	1.69
5 House Rent	21.81	5.79	7.19	39.21
6 Cleaning & Laundering	0.21	5.84	7.13	0.53
7 Medical Equipments	0.01	4.42	6.59	0.02
8 Construction Wage Rate	0.33	6.69	6.56	0.70
9 Motor Fuel	3.03	-11.39	6.41	3.68
10 Personal Care	1.49	3.92	6.12	2.77
Total	33.57			70.38
C. Ranked by Weights				
1 House Rent	21.81	5.79	7.19	39.21
2 Electricity	4.40	0.00	0.00	0.00
3 Education	3.94	7.62	10.85	13.48
4 Communication & Apparatus	3.15	0.25	1.53	0.87
5 Motor Fuel	3.03	-11.39	6.41	3.68
6 Transport Services	2.70	-2.00	0.10	0.07
7 Cotton Cloth	1.73	5.09	3.22	1.75
8 Gas	1.58	9.92	0.00	0.00
9 Footware	1.55	0.94	0.57	0.21
10 Personal Care	1.49	3.92	6.12	2.77
Total	45.39			62.03

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 5.0 percent in August, 2017.

Table A4: Distribution of Price Changes (YoY) - Selected CPI Items: August 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	Pulse Mash (Washed), Garlic, Pulse Gram, Tomatoes, Pulse Masoor (Whole).	Sweetmelon (Garma), Chillies Powd.National 200 Gm, Chillies Green, Pickles Ahmed/Mitchelles, Bananas.	Tapal Danedar Tea 200 Gm, Potatoes, Cuminseed White National, Mutton Av.Qlty., Groundnuts (With Shell).	Onion, Mango Kalmi, Ginger, Apple, Lemon, Tea Lipton Yellow Label 200 Gm, Rice Basmati Broken Av.Ql. Chicken Farm Broiler (Live), Rice Basmati 385/386, Coconut Dry Av. Qlty.
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.	Lungi/Dhoti(Cotton) Avg.Qlty, Pullover Gents Oxford/Bon, Handkerchief Sup. Qlty Pak, Awami-Suit W&W (Gents)Av.Qlty, Shirt Boy 24"/26" Length.	Heavy Wt Suiting Law.Pur Av. Qlty, Tailoring Suit (Female), Tailoring Charges Pant (Men), Tailoring Awami-Suit (Male), Dry Cleaning Suit Coat Pant.	
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/Day), Bricks (New) Ist Class, Sand (Black Pit Sand), Plumber Wage Rate, Timber Shesham Log, Firewood Whole, Synthetic Enemal Robialac.	Unskilled Labour Wage Rat, Mason (Raj) Wage Rate, 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 Sup.Qlty, Dinner Set Plastic (6X2 1/2), Match Box (Small), Sewing Machine Needle (Singer).	Bed Sheet Single Bed Sup.Qlty, Dinner Set Plastic 72 Pcs, Air Cooler Super Asia Sofa Set Wooden With Foam, Water Cooler 9/10 Ltr.	Boot Polish Cherry/Kiwi 50 ML, Tea Set Pak, China Wear 21 Pcs, Chair Shesham Wood, Sewing Machine (Singer), Robin Blue (35 Gms).	
Health	Saniplast (1 Putty), Galxos-D (450 Gm), Betnesol Eye Drops, Sancos Syrup (50 ML), Ventolin Tab. 2Mg., Trisil Tab.	Sugar Test (Random/Fasting), Urine Test (Dr) Charges, Brufen Tabs 200-Mg., Ear Drops (Cardisporine), Gripewater Woodwards.	Doctor (Mbbs) Clinic Fee, Cotton Bandage 2" - 4", Hydryllin Syrup 120 ML, O.R.S. (Nimcol), Blood Test (Cp) Charges.	Burnol Cream 30 Gm, Dettol (Medium), Entox Tab., Lederplex Syrup, Jouhar Joshandha, Septran Tablets.
Transport	Tyre Motor Cycle Without Tube, Tyre Car With Tube General, Tyre Cycle, Plateform Ticket, Bus Fare Outside City (Non A/C).	Car Suzuki 800 Cc (W/O. Ac), Petrol Super, Car Suzuki 1000 Cc, Cng, Cycle Overhauling Charges, Motor Cycle Service Charges, Car Toyota 1300 Cc, Tyre Puncture Charges.		Gas Cylinder S.Size (L.P.G). Cc, Car Honda Civic 1500 Cc, High Speed Diesel Hsd.
Communication	Postal Envelope Domestic, Telephone Charges Local Call, Telephone Charges Outside City.	Mobile Cell Charges, Mobile Set Nokia/Sony/Ericsson Av.Qlty, Postal Envelope For Saudi Arabia.	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.	Daily "Dawn", Cinema A/C High Class, Weekly "Mag", Pen Ink Dollar 57 MI Bottle, T.V 20" Color China/Koria, Personnel Computer (Branded).	Daily "Jang", Ball Pen (Local), Pencil Goldfish/Deer, Daily "Nawa-E-Waqt",	Cinema Non-A/C High Class,
Education	Mba Tuition Fee.	Coaching Fee For Class Ix/ X, Pvt School Fee Eng.Med Pvt Med.CollFee Mbbs(Ist Class-V), Pvt School Fee Year, Coaching Charges For Class Xi/ Xii Commerce.	Govt. University Fee Msc/ Ma, Govt. Engg. Coll. Fee 1st Year, Govt. Med. College Fee Mbbs Ist Year, Pvt School Fee Eng.Med (Class-Vi).	
Restaurants & Hotels		Tea Prepared (Ordinary), Bread Tandoori St. Size.	Chicken Biryani Full/Double, Cooked Dal (Av. Hotel), Cooked Mutton (Av. Hotel).	
Miscellaneous	Gold Tezabi 24 Ct, Shampoo Sunsilk/Pantene 100 ML, Silver Tezabi 24 Ct.	Beauty Cream (Fair & Lovely), Wall Clock Quartz Av.Qlty, Shaving Cream Touch-Me/Admiral.	Toothpowder Dentonic 90 Gms, Toilet Soap Safeguard Bath Size, Hair Oil Amla/Chambeli.	Toilet Soap Lifebouy 140 Gms, Artificial Jewellery Set.

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

City	High inflation cities			City	Low inflation cities		
	General	Food	Non-food		General	Food	Non-food
Turbat	7.6	1.3	11.3	Sahiwal	3.3	-0.9	5.9
Vehari	7.3	1.6	11.6	Sialkot	3.3	-1.4	6.7
Mianwali	6.8	-0.9	11.9	D. I. Khan	3.2	1.1	4.7
Gawadar	5.5	0.6	9.0	Gujranwala	3.0	-0.2	5.4
Bahawalnagar	5.4	0.7	8.7	Sargodha	3.0	-0.2	5.1
Bahawalpur	5.3	-0.7	9.1	Sukkur	2.9	1.7	3.7
Faisalabad	5.2	1.6	7.8	Quetta	2.9	1.1	4.2
Khuzdar	5.2	2.7	7.0	Attock	2.9	1.2	4.1
Lahore	5.1	4.0	6.0	Loralai	2.8	-0.8	5.2
Islamabad	5.0	0.6	8.3	Jhelum	2.8	-0.1	4.8
Bannu	4.1	0.4	6.7	Larkana	2.6	1.4	3.3
Multan	4.0	0.8	6.3	R. Y. Khan	2.5	0.8	3.7
Hyderabad	3.9	3.4	4.2	Rawalpindi	2.4	-0.7	4.4
Mingora	3.8	-0.8	6.6	Mirpukhlas	2.3	2.6	2.1
D. M. Jamali	3.6	3.3	3.8	Peshawar	2.1	-1.3	4.4
Abbottabad	3.6	3.1	3.8	Dadu	2.1	1.5	2.5
Jhang	3.4	0.6	5.2	D. G. Khan	1.9	0.4	2.9
				Mithi	1.8	2.1	1.6
				Karachi	1.7	0.7	2.5
				Muzaffargarh	1.7	0.2	2.8
				Wazirabad	1.3	-1.3	3.1
				Mardan	0.6	-0.1	1.0
				Nawabshah	-0.6	-1.3	-0.2

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

Table A7: Income Group-wise Inflation (percent)

	MoM			YoY		
	Aug-16	Jul-17	Aug-17	Aug-16	Jul-17	Aug-17
<u>Up to Rs. 8000</u>						
General	-0.3	0.3	0.4	3.6	1.6	2.4
Food	-0.6	0.1	0.7	3.4	-1.1	0.2
Non-food	0.1	0.6	0.1	3.9	4.9	5.0
<u>Rs. 8001- 12000</u>						
General	-0.3	0.3	0.3	3.9	2.0	2.7
Food	-0.8	0.1	0.6	3.4	-0.7	0.6
Non-food	0.1	0.6	0.1	4.4	4.9	4.9
<u>Rs. 12001- 18000</u>						
General	-0.4	0.3	0.3	3.2	2.2	2.8
Food	-0.9	0.1	0.5	3.5	-0.6	0.7
Non-food	0.1	0.6	0.1	3.0	4.9	4.9
<u>Rs. 18001- 35000</u>						
General	-0.4	0.2	0.2	3.7	2.4	2.9
Food	-1.0	0.0	0.4	3.5	-0.4	0.9
Non-food	0.2	0.4	0.1	3.9	4.7	4.6
<u>Above Rs. 35000</u>						
General	-0.3	0.4	0.1	3.7	3.6	4.0
Food	-1.1	0.0	0.3	3.3	0.7	2.0
Non-food	0.2	0.6	0.0	3.9	5.2	5.0
<u>All income groups</u>						
General	-0.3	0.3	0.2	3.6	2.9	3.4
Food	-0.9	0.0	0.4	3.4	-0.1	1.2
Non-food	0.2	0.6	0.1	3.7	5.1	5.0

Table A8: SPI Item-wise Price Movements

Sr.No.	Items	Unit	Prices		Percentage change
			Aug-17	YoY	MoM
1	Wheat	10Kg.	318.7	-3.7	-1.0
2	Wheat Flour Bag	10Kg.	360.9	-4.1	-1.3
3	Rice Basmati Broken	Kg.	70.1	13.1	1.3
4	Rice Irri-6	Kg.	50.2	3.7	0.6
5	Bread Plain Med. Size (340-400 Gm.)	Each	41.1	0.0	0.0
6	Beef	Kg.	341.3	5.3	1.7
7	Mutton	Kg.	706.9	8.8	1.9
8	Chicken Live (Farm)	Kg.	137.0	4.6	-9.6
9	Milk Fresh	Litr	81.9	2.1	0.4
10	Curd	Kg.	98.0	4.3	0.6
11	Milk Powdered Nido	500G	372.9	-2.7	0.8
12	Egg Hen (Farm)	Doz.	97.0	0.9	1.2
13	Mustard Oil	Kg.	182.5	1.3	0.3
14	Cooking Oil (Tin)	2.5Ltr	470.5	3.5	0.1
15	Veg. Ghee (Tin)	2.5Kg.	463.5	4.1	0.1
16	Veg.Ghee Loose	Kg.	145.3	4.7	0.1
17	Bananas	Doz.	76.1	2.4	-18.7
18	Masoor Pulse Washed	Kg.	122.1	-19.8	-2.6
19	Moong Pulse Washed	Kg.	123.9	-19.7	-1.9
20	Mash Pulse Washed	Kg.	187.0	-30.6	-2.2
21	Gram Pulse Washed	Kg.	122.0	-22.9	-2.2
22	Potatoes	Kg.	38.7	0.7	0.9
23	Onions	Kg.	46.4	62.9	46.6
24	Tomatoes	Kg.	57.9	-4.5	34.5
25	Sugar	Kg.	56.9	-20.1	3.3
26	Gur	Kg.	84.7	-9.1	0.4
27	Salt Powdered Loose (Lahori)	Kg.	10.7	1.4	0.0
28	Red Chilies Powder Loose	Kg.	260.2	-6.9	-0.9
29	Garlic	Kg.	193.0	-28.7	-4.8
30	Tea (Yellow Label)	200Gm.	193.8	22.7	-4.9
31	Cooked Beef Plate	Each	93.5	2.1	0.0
32	Cooked Dal Plate	Each	57.2	1.8	0.4
33	Tea Prepared (Sada)	Cup	21.1	6.2	0.6
34	Cigarettes K-2 (20'S)	20'S	50.8	-20.9	0.0
35	Long Cloth (Coarse Latha)	Mtr.	212.3	3.3	0.0
36	Shirting	Mtr.	169.3	3.1	0.0
37	Lawn	Mtr.	255.8	1.8	0.0
38	Georgette (Voil Printed)	Mtr.	125.6	1.6	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	0.1	0.0
44	Kerosene	Litr	78.9	5.4	0.1
45	Firewood	40Kg	609.1	2.0	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	70.6	8.4	-2.0
50	Diesel	Litr	78.8	7.3	-2.5
51	L.P.G.(11 Kg Cylinder.)	Each	1127.3	27.7	14.6
52	Tele. Local Call	Call	3.9	0.0	0.0
53	Bath Soap Lifebuoy (Standard)	Cake	41.7	13.1	0.1
Maximum			62.9	46.6	
Median			1.8	0.0	
Minimum			-30.6	-18.7	

Table A9: Distribution of Price Changes (YoY) - WPI Items: August 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/Bajira, Sorghum/Jowar, Pulses, Vegetables, Maize, Sugar Crops, Wheat, Fibre Crops, Eggs, Dry Fruits, Fish Live Fresh Or Chilled, Raw Animal Material/Wool.	Milk From Bovine Animals, Edible Roots/Potatos.	Cotton Seeds, Other Oil Seeds, Fuel Wood In Logs.	Stimulant And Spice Crops, Poultry, Unmanufactured Tobacco, Rice, Fresh Fruits.
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, Cotton Yarn, Other Leather N.E.C, Leather With Out Hairs.	Spices, Vegetable Ghee, Towels, Blended Yarn, Vegetable Oil Refined, Mineral Water, Blankets, Synthetic Carpets, Other Fabrics, Cotton Fabrics, Footwears, Milk And Cream In Solid Form, Chocolate, Ready Made Garments, Beverages, Bed Sheets, Other Food Products, Fruit Juices.	Meat Of Animals, Hosiery Products, Woolen Carpets, Dairy Products N.E.C, Sugar Confectionary, Vegetables & Fruit Juices, Quilts.	Woven Fabrics, Coffee And Tea, Ice Cream, Processed Liquid Milk, Dried Fruits & Nuts.
Other Transportable Goods except Metal Products, Machinery and Equipments	Fertilizers, Auto Tyres, Plastic Products, Pesticides, Ceramics And Sanitary, Paints & Varnishes, Coke, Dying Materials.	Cement, Diesel Oil, Insecticised, Soaps & Detergent, Mobil Oil, Chemicals, Kerosine Oil, Bricks Blocks And Tiles, Printing Paper.	Bed Foams, Medicines, Motor Spirit, Other Glass Articles, Matches, Timber.	Furnace Oil, Glass Sheets, Hard Board.
Metal Product Machinery & Equipment	Cultivators, Tractors, Lighting Equipments, Air Conditioners, Bicycles, Motor Cycles, Pig Iron, Concrete Mixer, Radio And Television.	Chuff Cutter, Steel Products.	Vacuum Pumps, Engines And Motors, Electrical Wires, Motor Vehicles, Refrige,Wash& Sew Mach,Iron,Fan.	Steel Bars & Sheets, Lathe Machines, Pipe Fittings.

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

Items and specification	Weights	Index		
		Aug-16	Jul-17	Aug-17
General	100.00	209.46	216.19	216.61
Food & Non-Alcoholic Beverages.	34.83	225.91	229.99	230.99
1 Wheat	0.35	193.50	191.16	190.80
2 Wheat Flour	4.16	209.16	204.66	203.10
3 Wheat Product	0.10	215.54	213.98	212.62
4 Besan	0.15	327.65	283.83	279.13
5 Rice	1.58	159.75	179.16	182.03
6 Cereals	0.16	250.03	255.20	255.72
7 Bakery & Confectionary	1.16	215.45	218.39	218.89
8 Nimco	0.46	248.87	255.18	255.83
9 Meat	2.43	263.86	278.70	284.04
10 Chicken	1.36	157.45	190.36	179.73
11 Fish	0.30	218.81	214.09	216.37
12 Milk Fresh	6.68	266.37	275.62	276.02
13 Milk Product	0.63	256.76	264.40	265.43
14 Milk Powder	0.11	236.75	234.53	234.41
15 Egg	0.46	192.60	193.19	197.47
16 Mustard Oil	0.10	154.01	159.87	160.10
17 Cooking Oil	1.75	133.69	138.25	138.09
18 Vegetable Ghee	2.07	136.99	142.80	143.05
19 Dry Fruits	0.25	262.69	264.33	263.32
20 Fresh Fruits	1.86	235.74	284.14	267.92
21 Pulse Masoor	0.27	214.39	178.60	174.98
22 Pulse Moong	0.23	292.35	243.58	239.10
23 Pulse Mash (Washed)	0.21	373.69	279.76	272.32
24 Pulse Gram	0.24	344.99	281.95	276.43
25 Gram Whole	0.16	303.31	287.96	287.53
26 Beans	0.03	235.74	242.51	244.13
27 Potatoes	0.47	242.67	261.30	266.30
28 Onion	0.53	168.93	181.81	243.40
29 Tomatoes	0.44	202.32	128.96	162.16
30 Fresh Vegetable	1.68	282.55	262.61	264.85
31 Sugar	1.04	253.85	200.46	214.35
32 Gur	0.02	288.05	260.49	259.38
33 Honey	0.04	312.60	331.37	332.15
34 Sweet Meet	0.25	243.97	251.88	252.57
35 Beverages	1.20	221.76	226.09	226.10
36 Jam, Tomato Ketchup & Pickle	0.25	215.53	218.93	219.51
37 Condiments	0.27	262.89	269.74	270.57
38 Spices	0.54	242.16	236.34	238.53
39 Tea	0.84	255.57	291.89	289.16
Alcoholic Beverages, Tobacco	1.41	365.41	306.67	306.25
40 Cigarette	1.39	367.46	307.56	307.18
41 Betel Leaves & Nuts	0.02	241.23	252.67	250.15
Clothing & Footwear	7.57	230.14	238.66	239.19
42 Cotton Cloth	1.73	225.23	232.33	232.48
43 Woolen Cloth	0.88	244.64	256.60	257.77
44 Ready Made Garment	0.97	238.15	247.08	247.56
45 Woolen Readymade Garments	0.40	253.10	258.31	258.31
46 Hosiery	0.51	243.83	248.56	249.96
47 Dopatta	0.44	241.64	246.51	246.66
48 Cleaning & Laundering	0.21	253.54	270.83	271.61

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

Items and specification	Weights	Index		
		Aug-16	Jul-17	Aug-17
49 Tailoring	0.88	298.65	322.81	324.27
50 Footwear	1.55	166.50	167.43	167.45
Housing, Water, Elect, Gas & Other Fuel	29.41	188.91	198.88	198.93
51 House Rent	21.81	178.64	191.49	191.49
52 Construction Input Item	0.56	248.07	254.05	254.56
53 Construction Wage Rate	0.33	230.47	242.75	245.58
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	194.46	198.67	197.81
58 Fire Wood Whole	0.23	284.20	290.72	291.56
Furnished H.Hold Equip. & Maint. Etc	4.21	222.31	227.74	228.05
59 Furniture	0.33	212.13	219.56	220.16
60 Household Textile	0.65	221.72	229.70	230.07
61 Household Equipment	0.59	178.57	182.79	183.18
62 Utensils	0.32	223.28	232.63	233.80
63 Plastic Products	0.25	207.81	211.07	211.37
64 Washing Soap & Detergent	0.79	228.30	232.61	232.80
65 Sewing Needle & Dry Cell	0.15	208.41	207.74	207.74
66 Household Servant	1.04	249.98	254.90	254.90
67 Marriage Hall Charges	0.08	243.04	248.67	249.20
Health	2.19	189.42	212.91	213.05
68 Drug Medicine	1.27	156.31	185.10	185.27
69 Medical Equipment	0.01	236.25	251.81	251.81
70 Doctor (MBBS) Clinic Fee	0.59	260.45	280.95	280.95
71 Medical Test	0.32	188.31	196.54	196.81
Transport	7.20	170.10	175.18	174.61
72 Motor Vehicle	0.66	170.42	176.06	176.59
73 Motor Vehicle Accessories	0.24	214.24	211.42	211.91
74 Motor Fuel	3.03	135.58	145.84	144.27
75 Mechanical Service	0.46	227.40	231.88	232.07
76 Motor Vehicle Tax	0.11	210.18	210.18	210.18
77 Transport Services	2.70	193.40	193.59	193.59
Communication	3.22	130.90	132.88	133.03
78 Postal Services	0.07	240.63	250.44	250.44
79 Communication & Apparatus	3.15	128.59	130.41	130.56
Recreation & Culture	2.02	195.77	196.09	196.33
80 Recreation & Culture	0.86	128.83	129.20	129.38
81 Text Books	0.57	292.41	287.98	287.98
82 News Papers	0.19	175.49	181.78	182.90
83 Stationery	0.40	212.39	216.54	216.82
Education	3.94	225.17	249.54	249.61
84 Education	3.94	225.17	249.54	249.61
Restaurants And Hotels	1.23	265.77	278.44	278.44
85 Ready Made Food	1.23	265.77	278.44	278.44
Miscellaneous Goods And Services	2.76	237.38	247.19	248.46
86 Personal Care	1.49	216.52	228.11	229.77
87 Cosmetics	0.39	200.50	205.40	205.72
88 Blades	0.03	195.93	197.80	197.80
89 Personal Equipments	0.84	292.71	301.92	302.99

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

Items and Specifications	Index		
	Aug-16	Jul-17	Aug-17
General	215.75	217.24	217.96
Agriculture Forestry & Fishery	251.53	251.86	250.96
1 Wheat	204.89	196.73	194.17
2 Maize	204.55	187.91	189.41
3 Rice	149.84	167.90	168.81
4 Sorghum/Jowar	268.83	213.13	209.74
5 Millet/Bajra	214.70	160.62	157.16
6 Vegetables	342.81	285.60	296.47
7 Fresh Fruits	257.27	314.93	284.12
8 Dry Fruits	236.23	237.06	233.30
9 Cotton Seeds	260.45	280.36	278.51
10 Other Oil Seeds	171.21	182.82	182.82
11 Edible Roots/ Potatoes	251.32	273.56	256.16
12 Stimulant And Spice Crops	209.80	243.03	269.90
13 Pulses	310.10	266.22	263.31
14 Sugar Crops	286.34	268.94	268.94
15 Fibre Crops	213.75	204.44	204.58
16 Unmanufactured Tobacco	255.93	290.76	290.62
17 Poultry	154.96	201.12	190.18
18 Milk From Bovine Animals	262.97	268.56	269.94
19 Eggs	205.04	191.56	199.48
20 Raw Animal Material/Wool	173.89	173.80	172.91
21 Hides And Fur Skins, Raw	150.46	102.78	100.98
22 Fuel Wood In Logs	264.77	279.63	279.63
23 Fishes Live Fresh Or Chilled	469.80	463.98	463.98
Ores/Minerals, Gas & Elect.	241.26	241.76	242.53
24 Coal Not Agglomerated	152.94	155.29	155.29
25 Natural Gas Liquefied	207.95	208.82	210.37
26 Salt & Pure Sodium Chloride	254.33	242.77	248.46
27 Electrical Energy	288.00	288.00	288.00
Food, Beverages, Tobacco, Textiles	225.84	224.20	226.39
28 Meat Of Animals	277.40	294.10	303.71
29 Vegetables & Fruit Juices	208.88	223.38	223.38
30 Dried Fruits & Nuts	238.61	268.30	263.87
31 Fruit Juices	182.13	181.83	182.38
32 Vegetable Oil Refined	151.32	155.56	155.87
33 Vegetable Ghee	121.34	126.24	126.04
34 Oil Cakes	235.25	229.39	228.42
35 Processed Liquid Milk	252.73	279.71	282.01
36 Milk And Cream In Solid Form	221.01	221.77	222.44
37 Ice Cream	238.04	266.02	266.02
38 Dairy Products N.E.C	248.53	269.53	268.85
39 Wheat Flour	193.41	188.03	186.18
40 Other Cereal Flour	309.22	236.55	226.59
41 Sugar Refined	267.60	203.39	221.26
42 Chocolate	99.45	100.00	100.00
43 Sugar Confectionary	118.83	128.44	128.44
44 Coffee And Tea	230.46	261.18	258.68
45 Spices	190.20	189.72	199.08
46 Other Food Products	293.85	294.01	294.50
47 Mineral Water	196.22	199.51	199.51
48 Beverages	172.44	172.92	172.85
49 Tobacco Products	435.03	318.37	318.37
50 Cotton Yarn	204.03	202.68	202.49
51 Nylon Yarn	147.08	143.99	143.99
52 Blended Yarn	177.65	182.65	183.38
53 Woven Fabrics	279.69	316.28	316.28
54 Cotton Fabrics	209.09	211.33	211.33
55 Other Fabrics	224.29	227.16	227.16

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

Items and Specifications	Index		
	Aug-16	Jul-17	Aug-17
56 Silk And Rayon Fabrics	190.96	188.89	188.89
57 Towels	267.20	276.14	276.14
58 Blankets	243.93	247.52	247.52
59 Bed Sheets	256.29	256.87	256.87
60 Quilts	198.00	208.42	208.42
61 Woolen Carpets	181.55	196.43	196.43
62 Synthetic Carpets	129.25	130.95	130.95
63 Hosiery Products	224.73	243.31	243.31
64 Ready Made Garments	200.66	201.37	201.37
65 Leather With Out Hairs	221.97	221.97	221.97
66 Other Leather N.E.C	207.31	207.31	207.31
67 Footwear's	143.97	145.51	145.51
Other Transportable Goods	163.50	170.61	170.93
68 Timber	220.36	231.53	231.53
69 Printing Paper	164.90	166.11	166.40
70 Hard Board	197.92	220.83	225.00
71 Coke	163.45	163.45	163.45
72 Motor Sprit	108.54	120.42	117.38
73 Diesel Oil	144.34	153.43	150.68
74 Kerosene Oil	115.11	117.12	117.12
75 Furnace Oil	75.95	97.35	101.72
76 Mobil Oil	196.00	201.29	201.29
77 Chemicals	177.26	177.88	180.49
78 Dying Materials	146.55	146.55	146.55
79 Fertilizers	226.26	215.02	215.94
80 Pesticides	308.79	306.06	306.06
81 Insecticides	137.12	139.64	142.41
82 Paints & Varnishes	295.36	294.51	294.56
83 Medicines	162.78	174.14	174.94
84 Soaps & Detergent	185.30	191.20	191.20
85 Auto Tyres	181.25	177.07	177.07
86 Plastic Products	228.35	225.88	225.88
87 Glass Sheets	247.94	298.97	298.97
88 Other Glass Articles	299.07	317.24	317.24
89 Ceramics And Sanitary	233.48	232.65	232.65
90 Bricks Blocks And Tiles	218.86	221.24	221.50
91 Cement	211.14	220.11	221.52
92 Bed Foams	158.83	170.33	170.33
93 Matches	162.62	171.36	171.36
Metal Product Machinery & Equip	172.82	176.14	177.02
94 Pig Iron	128.97	128.97	128.97
95 Steel Bars & Sheets	122.74	137.44	138.48
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	214.81	241.06	241.06
105 Concrete Mixer	138.83	138.83	138.83
106 Refrige,Wash& Sew Mach, Iron,Fan	204.03	214.93	214.97
107 Electrical Wires	195.19	205.92	205.92
108 Lighting Equipments	172.03	170.73	170.73
109 Radio And Television	140.42	140.42	140.42
110 Motor Vehicles	185.25	195.36	195.36
111 Motor Cycles	125.89	125.89	125.89
112 Bicycles	187.65	185.81	187.65

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	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
	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
2016	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
	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
2017	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
	Aug	216.61	235.38	205.36	217.96	251.05	196.96	219.82

*: all groups combined

Table A13: International Commodity Prices/ Indices

	Mar-17	Apr-17	May-17	Jun-17
Energy				
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
Food				
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
Non-Food Non-Energy				
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 and August, 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

Table 14: CPI Data Series Original and Seasonally Adjusted

Period	Original Series				
	FY14	FY15	FY16	FY17	FY18
Jul	183.58	198.05	201.76	210.08	216.19
Aug	185.71	198.70	202.25	209.46	216.61
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	
Seasonally Adjusted Series					
Jul	182.82	197.18	200.86	209.11	215.20
Aug	184.39	197.35	200.93	208.10	215.21
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	

Table 15: CPI Food Data Series Original and Seasonally Adjusted

Period	Original Series				
	FY14	FY15	FY16	FY17	FY18
Jul	208.19	222.80	224.14	234.69	234.47
Aug	212.27	224.05	224.86	232.48	235.38
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	
Seasonally Adjusted Series					
Jul	206.43	220.80	222.05	232.46	232.23
Aug	208.99	220.66	221.52	229.03	232.14
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	100.50	100.53	100.54	100.55	100.55	100.53
Aug	100.74	100.71	100.68	100.68	100.65	100.69
Sep	100.66	100.65	100.62	100.59		100.63
Oct	100.83	100.81	100.79	100.77		100.80
Nov	100.61	100.59	100.57	100.57		100.59
Dec	99.44	99.46	99.48	99.51		99.47
Jan	99.63	99.61	99.59	99.56		99.60
Feb	98.94	98.94	98.94	98.94		98.94
Mar	99.14	99.13	99.11	99.10		99.12
Apr	100.08	100.09	100.10	100.12		100.10
May	99.77	99.81	99.84	99.86		99.82
Jun	99.69	99.73	99.77	99.80		99.75

Table 17: CPI Food Monthly & Average Seasonal Factors

Period	FY14	FY15	FY16	FY17	FY18	Average
Jul	100.86	100.92	100.96	100.99	101.00	100.95
Aug	101.53	101.48	101.44	101.43	101.39	101.45
Sep	101.43	101.40	101.36	101.29		101.37
Oct	101.59	101.55	101.51	101.44		101.52
Nov	101.54	101.51	101.46	101.45		101.49
Dec	99.18	99.21	99.27	99.33		99.25
Jan	99.07	99.00	98.92	98.82		98.95
Feb	97.73	97.70	97.71	97.71		97.71
Mar	98.52	98.49	98.47	98.48		98.49
Apr	99.81	99.83	99.85	99.90		99.85
May	99.41	99.49	99.55	99.58		99.51
Jun	99.40	99.50	99.60	99.67		99.54

Table 18: CPI Month-on-Month % Change Original & Seasonally Adjusted

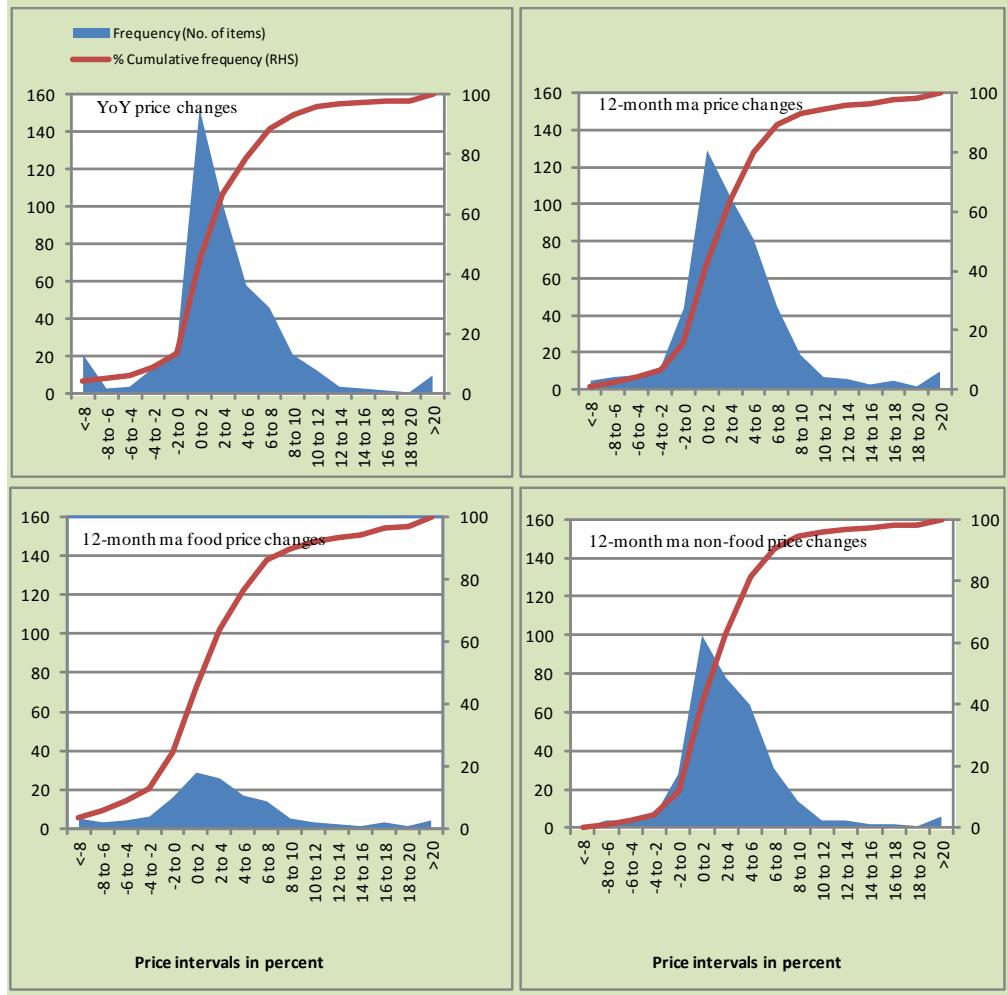
Period	Original Series				
	FY14	FY15	FY16	FY17	FY18
Jul	2.02	1.70	0.43	1.34	0.34
Aug	1.16	0.33	0.24	-0.30	0.19
Sep	-0.29	0.35	-0.10	0.20	
Oct	1.97	0.21	0.49	0.81	
Nov	1.27	-0.51	0.59	0.21	
Dec	-1.32	-1.01	-0.57	-0.68	
Jan	0.49	0.08	0.21	0.18	
Feb	-0.32	-0.92	-0.25	0.28	
Mar	0.96	0.23	0.15	0.84	
Apr	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	
Seasonally Adjusted Series					
Jul	1.16	0.85	-0.37	0.55	-0.40
Aug	0.92	0.15	0.10	-0.42	0.09
Sep	-0.21	0.41	-0.05	0.28	
Oct	1.80	0.04	0.32	0.62	
Nov	1.48	-0.29	0.81	0.41	
Dec	-0.16	0.12	0.52	0.38	
Jan	0.30	-0.07	0.11	0.13	
Feb	0.38	-0.25	0.40	0.91	
Mar	0.76	0.03	-0.02	0.68	
Apr	0.74	0.35	0.54	0.37	
May	0.04	1.04	0.05	0.27	
Jun	0.70	0.70	0.71	-0.34	

Table 19: CPI Food Month-on-Month % Change Original & Seasonally Adjusted

Period	Original Series				
	FY14	FY15	FY16	FY17	FY18
Jul	3.01	2.68	0.13	2.50	0.04
Aug	1.96	0.56	0.32	-0.94	0.39
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	
Seasonally Adjusted Series					
Jul	1.41	1.13	-1.31	1.10	-1.27
Aug	1.29	0.01	-0.15	-1.37	-0.01
Sep	-1.40	0.11	-0.36	0.27	
Oct	1.52	-0.31	0.30	0.66	
Nov	2.66	-0.41	1.24	0.20	
Dec	-1.03	0.18	0.56	0.19	
Jan	0.07	-0.24	-0.23	-0.46	
Feb	0.38	-0.51	0.55	1.46	
Mar	1.28	-0.28	-0.24	1.07	
Apr	0.66	0.04	0.96	0.28	
May	-0.79	2.17	-0.44	0.11	
Jun	1.06	1.17	1.32	-1.20	

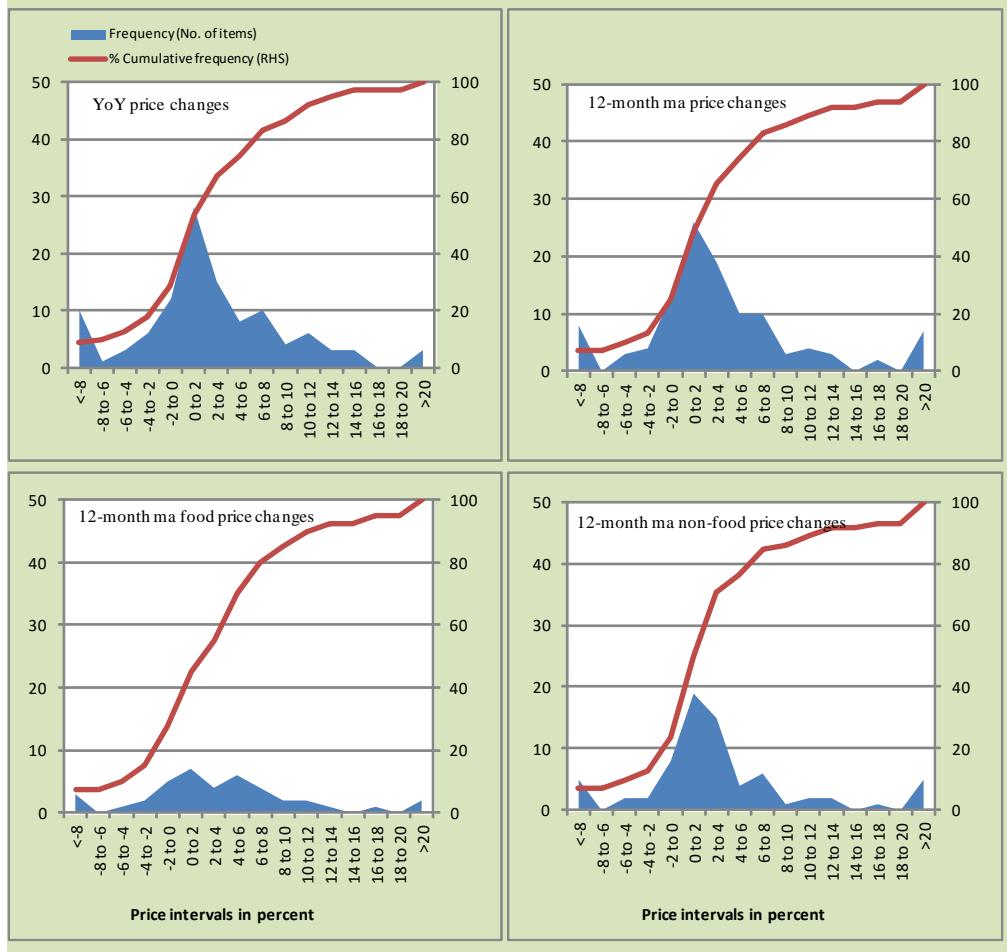


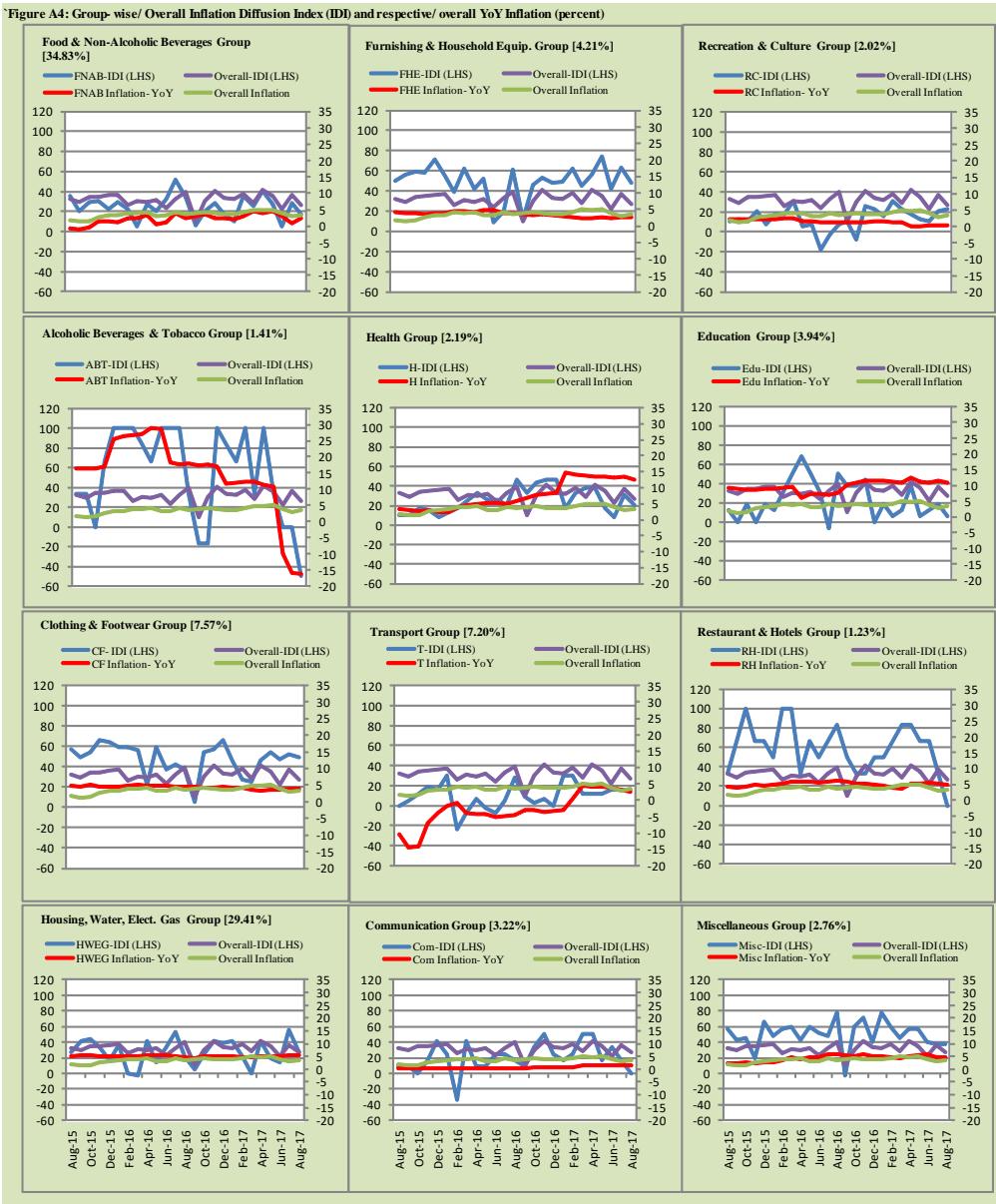
Figure A2: Frequency Distribution of Price Changes of CPI Items, August 2017



Inflation Monitor, August 2017

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





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^{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^{th} item

π_{it} : Inflation of i^{th} item

π_t : Overall inflation

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

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

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 constant¹.

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 analysis² suggests that IDI is a leading indicator for Pakistan’s YoY inflation.

¹ 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.

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