

Inflation Monitor

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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

- Mazhar Hussain Sr. Joint Director
 mazhar.hussain@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 5.8 percent on year-on-year basis in August 2018 as was at level in the previous month and 3.4 percent during corresponding month of last year.
2. CPI inflation on month-on-month basis is recorded at level of 0.2 percent in August 2018 as compared to 0.9 percent in the previous month and was at level during corresponding month of last year. Seasonally adjusted month-on-month CPI inflation is recorded at 0.19 percent in August 2018 compared to 0.41 percent in the previous month.
3. Core inflation (trimmed) on year-on-year basis is recorded at 5.9 percent in August 2018 and was at level in the previous month and 4.2 percent during corresponding month of last year.
4. On month-on-month basis, the Core inflation (trimmed) is recorded at 0.2 percent in August 2018 as compared to 0.9 percent in the previous month and 0.1 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 7.6 percent in August 2018 and was at level in the previous month and 5.6 percent during corresponding month of last year.
6. Core NFNE inflation on month-on-month basis recorded at 0.2 percent in August 2018 as compared to 1.1 percent in the previous month. Core NFNE inflation was 0.1 percent in the corresponding month of last year.
7. WPI inflation on year-on-year basis recorded at 11.0 percent in August 2018 as compared to 10.5 percent in the previous month and 1.0 percent during the corresponding month of last year.

8. WPI inflation on month-on-month basis recorded at 0.8 percent in August 2018 as compared to 2.4 percent in the previous month. It was 0.3 percent in the corresponding month of last year.
9. SPI inflation on year-on-year basis recorded at 4.0 percent in August 2018 as compared to 4.5 percent in the previous month. It was 0.5 percent in the corresponding month of last year.
10. SPI inflation on month-on-month basis recorded at -0.2 percent in August 2018 as compared to 0.5 percent in the previous month. It was 0.2 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 2018 are described below:

11. Core RSC inflation on year-on-year basis is recorded at 6.7 percent in August 2018 compared to 6.6 percent in the previous month and 4.3 percent during the corresponding month of last year.
12. Core RSC inflation on month-on-month basis is recorded at 0.3 percent in August 2018 compared to 1.0 percent in the previous month and 0.2 percent during 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
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	0.5	0.2
Sep-17	3.9	0.6	2.4	1.3	4.9	0.2	5.4	0.1	4.1	0.1	4.2	0.1	1.6	0.1	2.2	1.6
Oct-17	3.8	0.7	2.2	0.6	4.9	0.8	5.3	0.9	4.0	0.6	4.3	0.8	2.3	0.6	2.3	0.8
Nov-17	4.0	0.4	2.4	0.4	5.1	0.4	5.4	0.3	4.2	0.3	4.3	0.2	2.9	0.4	2.5	0.5
Dec-17	4.6	-0.1	3.8	-0.6	5.1	0.2	5.5	0.2	4.7	0.2	4.3	0.1	3.4	0.4	2.7	-0.3
Jan-18	4.4	0.0	3.7	-1.0	4.9	0.8	5.2	0.8	4.6	0.6	4.0	0.6	4.7	1.8	2.6	-0.7
Feb-18	3.8	-0.3	2.2	-1.1	4.9	0.2	5.2	0.2	4.3	0.1	4.1	0.2	4.1	-0.1	1.3	-0.9
Mar-18	3.2	0.3	0.1	-0.3	5.4	0.7	5.8	0.7	4.1	0.2	4.4	0.6	3.6	0.2	-0.9	-0.2
Apr-18	3.7	1.8	-0.2	1.5	6.4	2.1	6.9	2.4	5.0	1.7	5.3	2.0	4.0	1.3	0.5	0.7
May-18	4.2	0.5	1.0	1.0	6.4	0.2	6.9	0.2	5.1	0.3	5.3	0.3	5.6	1.3	1.8	0.6
Jun-18	5.2	0.6	3.0	0.8	6.7	0.4	7.1	0.3	5.4	0.2	6.0	0.3	7.6	1.5	3.3	1.6
Jul-18	5.8	0.9	3.5	0.6	7.4	1.2	7.6	1.1	5.9	0.9	6.6	1.0	10.5	2.4	4.5	0.5
Aug-18	5.8	0.2	3.3	0.2	7.6	0.2	7.6	0.2	5.9	0.2	6.7	0.3	11.0	0.8	4.0	-0.2
* NFNE is Non-food non-energy ** Relatively Stable Component of CPI *** SPI for all income groups combined																

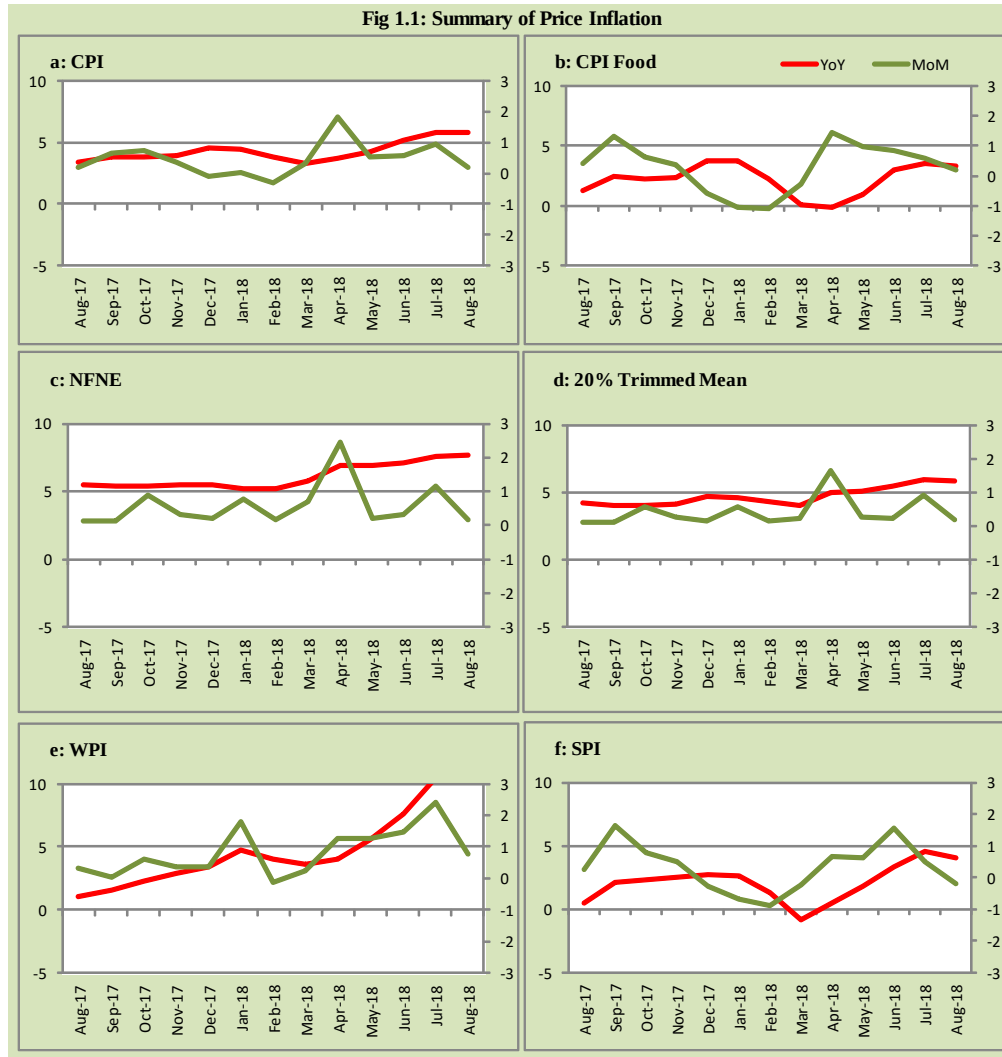


Fig 1.2: Movements in Price Indices (percent)

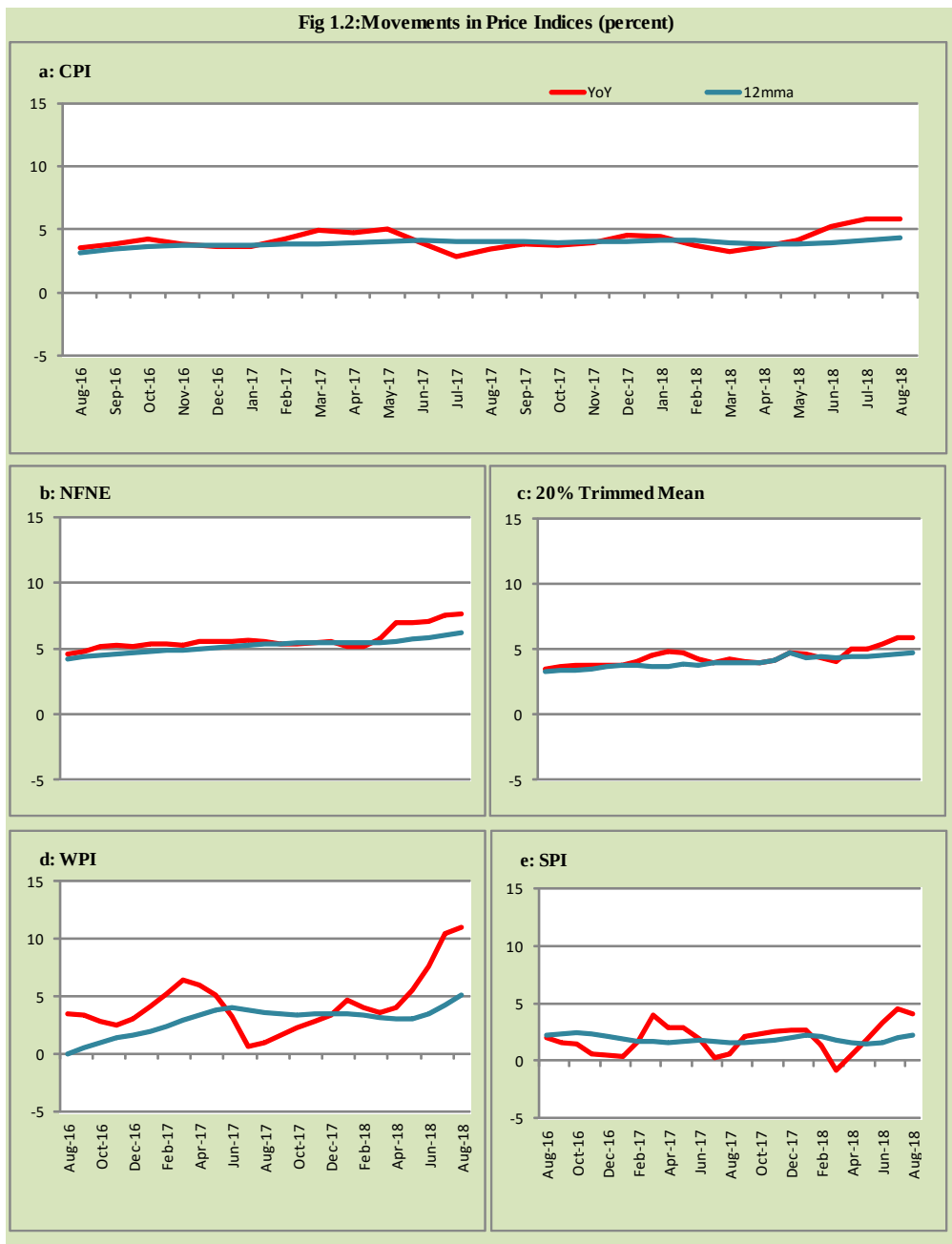


Fig 1.3: Movements in Price Indices -MoM (percent)

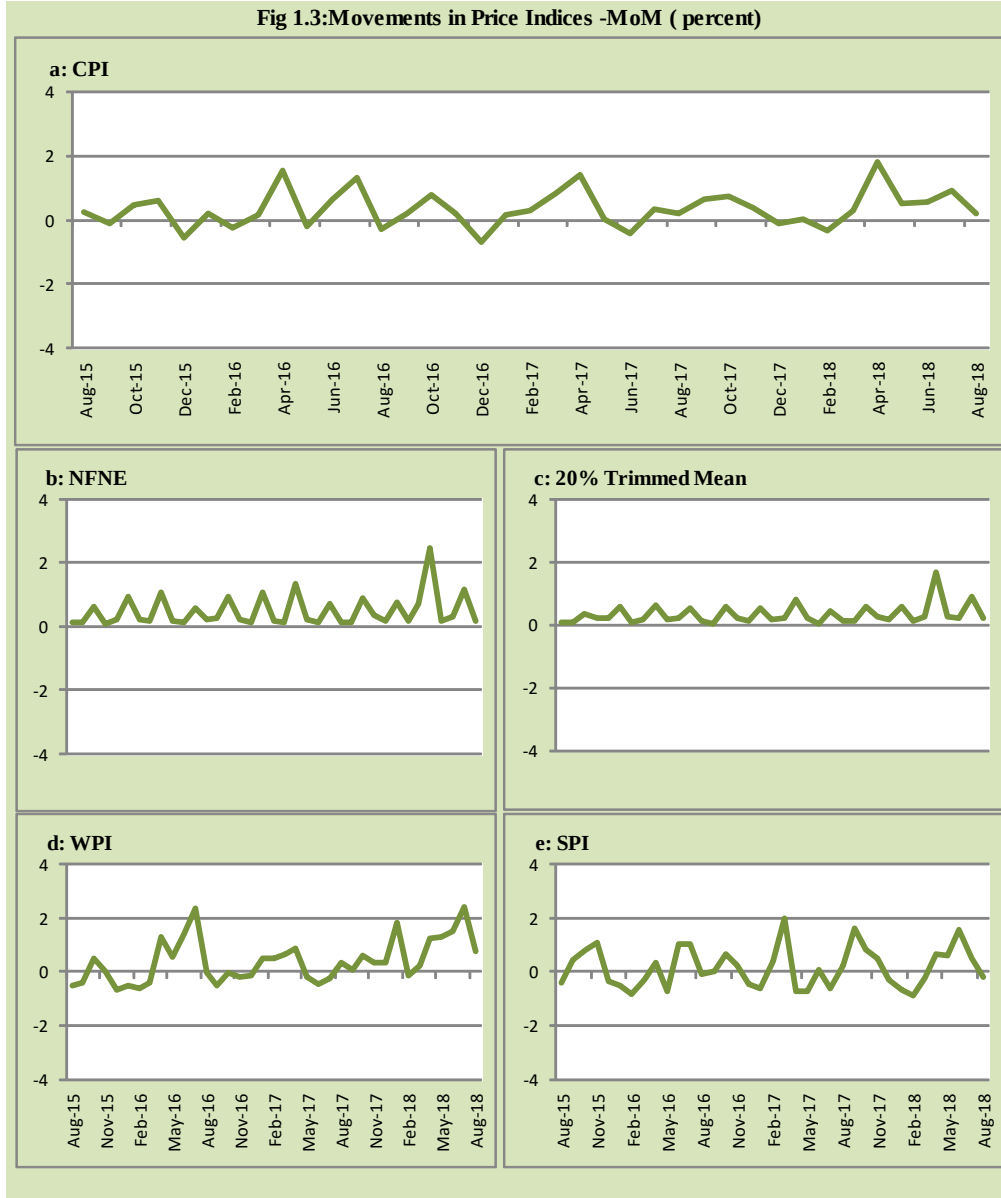
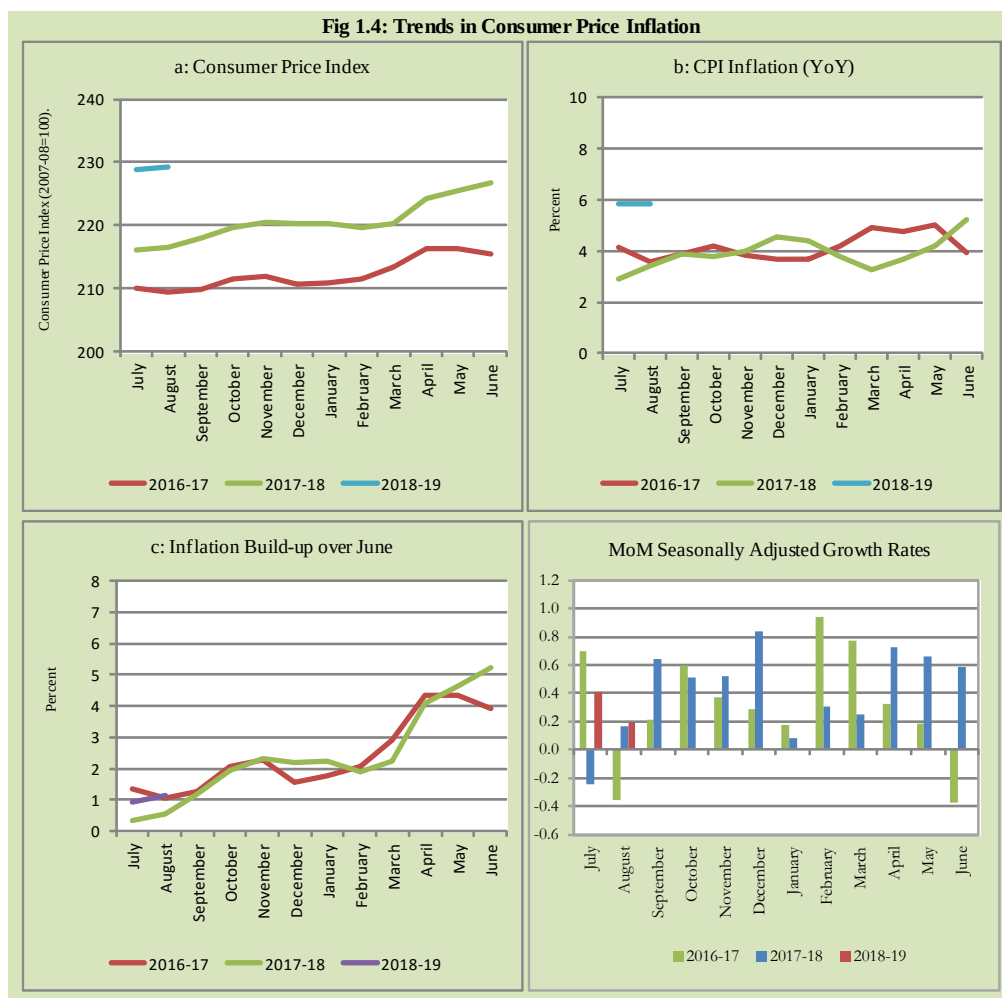


Fig 1.4: Trends in Consumer Price Inflation



2. City wise Inflation

CPI Inflation on year-on-year basis in federal and provincial capitals of Pakistan showed mixed trend during August 2018. Among these five cities, the lowest inflation was observed in Lahore at 4.4 percent while the highest inflation was observed in Quetta at 7.9 percent (Table A6 of annexure-A).

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

	Aug-17		Jul-18		Aug-18	
	MoM	YoY	MoM	YoY	MoM	YoY
Overall CPI	0.2	3.4	0.9	5.8	0.2	5.8
Islamabad	0.0	5.0	1.3	4.9	0.2	5.0
Karachi	0.0	1.7	0.5	5.3	0.1	5.4
Lahore	0.6	5.1	0.7	5.3	-0.3	4.4
Peshawar	0.3	2.1	2.3	6.7	0.6	7.0
Quetta	0.1	2.9	-0.6	7.7	0.3	7.9

3. Income Group wise Inflation

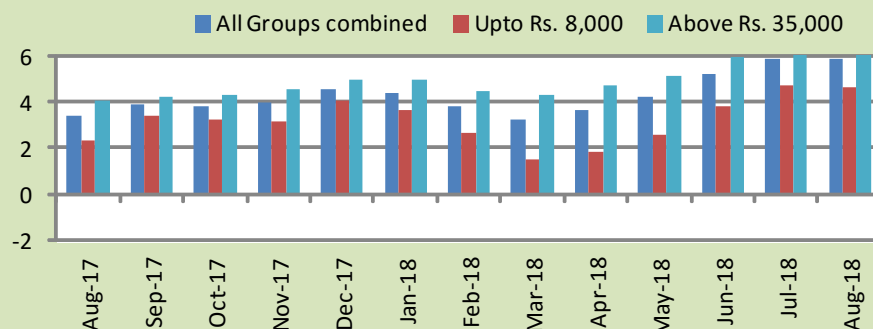
Income group-wise data shows that income group above Rs. 35,000 witnessed higher inflation as compared to other quintiles as well as overall CPI during August 2018 in General, Food and Non-food groups. The income groups (Up to Rs. 8, 000) observed lowest inflation in general CPI, food groups; and income groups (Up to Rs. 8, 000) and (Rs. 8,001- 12,000) observed lowest inflation in non-food groups among income groups during the month of August 2018 (Table A7 of annexure-A).

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

Income Groups	General			Food			Non-food		
	Aug-17	Jul-18	Aug-18	Aug-17	Jul-18	Aug-18	Aug-17	Jul-18	Aug-18
All Groups Combined	3.4	5.8	5.8	1.2	3.5	3.3	5.0	7.4	7.6
Up to Rs. 8,000	2.4	4.7	4.6	0.2	3.1	2.9	5.0	6.6	6.7
Rs. 8,001- 12,000	2.7	4.9	4.8	0.6	3.2	3.0	4.9	6.6	6.7
Rs. 12,001- 18,000	2.8	5.1	5.1	0.7	3.3	3.1	4.9	6.8	6.9
Rs. 18,001- 35,000	2.9	5.5	5.5	0.9	3.4	3.2	4.6	7.2	7.4
Above Rs. 35,000	4.0	6.5	6.6	2.0	3.9	3.7	5.0	7.8	8.0

Fig 3.1: Income Group- wise Inflation

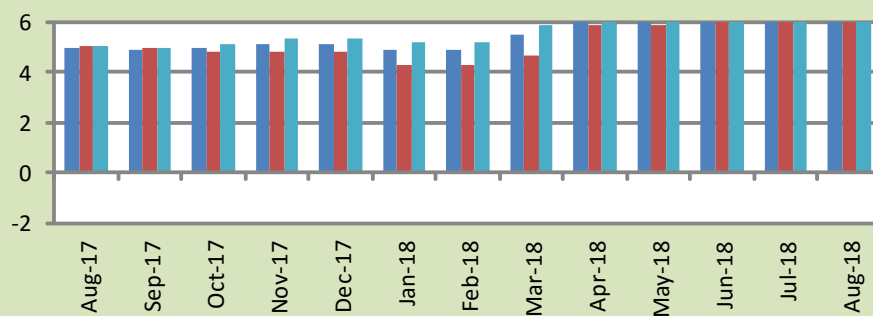
a: CPI Overall Inflation (YoY)



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 23.30 percent during August 2018 from 24.57 percent in previous month. It was 15.23 percent in August 2017.

The weighted contribution of non-food group increased to 76.70 percent in August 2018 from 75.43 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-17	15.23	9.58	41.22	4.54	13.48	15.94
Sep-17	26.02	8.46	36.50	4.83	9.28	14.91
Oct-17	24.31	8.25	34.17	5.96	13.05	14.27
Nov-17	25.04	7.95	32.53	6.73	13.57	14.18
Dec-17	34.01	6.68	28.47	5.73	11.85	13.26
Jan-18	34.02	8.17	25.57	7.58	12.23	12.43
Feb-18	23.85	10.07	29.89	8.71	13.92	13.56
Mar-18	1.07	12.39	35.10	11.73	23.44	16.27
Apr-18	-2.00	15.67	39.70	10.10	16.06	20.47
May-18	9.73	13.25	35.28	10.11	14.19	17.43
Jun-18	23.35	10.45	28.60	12.04	11.46	14.10
Jul-18	24.57	9.29	27.60	15.72	10.12	12.70
Aug-18	23.30	9.26	27.58	17.14	10.05	12.67

5. Inflation Diffusion Index

Table 5.1 Inflation Diffusion Index - based on MoM change

	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18
General	26.8	33.1	44.6	37.7	39.2	48.9	32.5	40.2	63.8	40.6	31.5	47.8	47.7
Food & Non-Alcoholic Beverages	17.5	17.4	46.1	17.1	25.0	42.1	19.3	20.4	50.0	46.3	30.1	60.9	46.5
Alcoholic Beverages & Tobacco	-50.0	0.0	50.0	33.3	50.0	33.3	33.3	66.7	100.0	-16.7	33.3	-16.7	0.0
Clothing & Footwear	49.2	42.4	44.1	59.3	78.0	78.0	44.1	47.5	84.7	32.2	50.8	35.6	45.8
Housing, Water, Elect, Gas & other Fuels	27.8	19.4	41.7	30.6	41.7	44.4	30.6	41.7	52.8	27.8	36.1	47.2	44.4
Furnishing & Household Equip. Maintenance etc	47.8	62.3	60.9	66.7	43.5	75.4	62.3	69.6	100.0	69.6	37.7	63.8	79.7
Health	20.5	33.3	25.6	33.3	35.9	43.6	33.3	30.8	48.7	33.3	25.6	41.0	51.3
Transport	16.3	20.9	34.9	25.6	20.9	32.6	23.3	27.9	25.6	34.9	30.2	55.8	39.5
Communication	0.0	16.7	25.0	25.0	8.3	41.7	41.7	25.0	33.3	0.0	0.0	8.3	16.7
Recreation & Culture	23.1	30.8	17.9	20.5	20.5	23.1	23.1	30.8	64.1	15.4	5.1	28.2	23.1
Education	6.3	0.0	50.0	50.0	0.0	0.0	0.0	25.0	37.5	18.8	6.3	0.0	0.0
Restaurant & Hotels	0.0	83.3	100.0	33.3	66.7	66.7	33.3	50.0	100.0	66.7	50.0	33.3	100.0
Miscellaneous	37.1	60.0	68.6	60.0	77.1	54.3	31.4	74.3	85.7	65.7	42.9	62.9	60.0
NFNE	33.4	38.2	43.2	45.0	43.2	51.5	36.7	46.2	69.2	39.3	31.4	45.0	48.8

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-17		Jul-18		Aug-18	
			YoY	MoM	YoY	MoM	YoY	MoM
1	Wheat	10 Kg	-1.40	-0.19	3.83	2.31	4.29	0.24
2	Wheat Flour Bag	10 Kg	-3.01	-0.68	4.01	2.40	4.90	0.17
3	Rice Basmati Sup. Qlty.	Kg	12.10	0.48	11.81	1.98	12.29	0.92
4	Pulse Masoor (Washed)	Kg.	-18.10	-1.71	-12.57	1.19	-11.04	0.00
5	Pulse Moong (Washed)	Kg.	-18.21	-1.84	-10.48	1.87	-8.93	-0.14
6	Pulse Mash (Washed)	Kg.	-27.13	-2.66	-26.18	-0.53	-24.24	-0.10
7	Pulse Gram	Kg.	-19.87	-1.96	-8.71	1.47	-6.71	0.20
8	Vegetable Ghee (Loose)	Kg.	5.09	-0.05	3.65	0.69	4.22	0.51
9	Sugar Refined	Kg.	-15.56	6.93	-1.37	3.24	-6.91	0.92
10	Milk Fresh (Unboiled)	Ltr	3.56	0.10	3.64	0.67	4.00	0.44
11	Tapal Danedar Tea 200 Gm	Pkt	9.97	-0.55	9.99	-0.68	10.91	0.28
12	Beef With Bone Av.Qlty.	Kg	7.10	1.96	9.90	1.66	9.54	1.62
13	Mutton Av.Qlty.	Kg	8.70	1.83	13.12	1.62	12.24	1.04
14	Chicken Farm Broiler (Live)	Kg	14.15	-5.58	0.50	-16.91	-14.96	-20.11
15	Eggs Farm	Doz	2.53	2.21	6.00	12.01	1.23	-2.39
16	Potatoes	Kg	9.74	1.91	-21.89	9.40	-18.11	6.85
17	Onion	Kg	44.09	33.88	10.55	6.50	4.00	25.95
18	Tomatoes	Kg	-19.85	25.75	38.39	15.63	62.42	47.59
19	Ginger	Kg	31.00	12.79	24.36	6.43	11.14	0.80
20	Garlic	Kg	-25.55	-1.82	-35.24	-1.64	-32.84	1.82

7. Global Commodity Prices

Table 7.1 Changes in Major Global Indices (percent)

Item/ Group	Aug-17		Jul-18		Aug-18	
	YoY	MoM	YoY	MoM	YoY	MoM
Food	-5.6	-4.1	-0.6	-3.6	2.1	-1.5
Metals	28.3	7.6	7.2	-9.1	-3.2	-2.8
Energy	13.2	4.6	47.3	1.0	38.4	-1.7
Agricultural	-5.4	-2.6	-0.6	-2.9	0.2	-1.8
Cotton	-1.1	-5.6	14.4	-1.6	19.2	-1.7

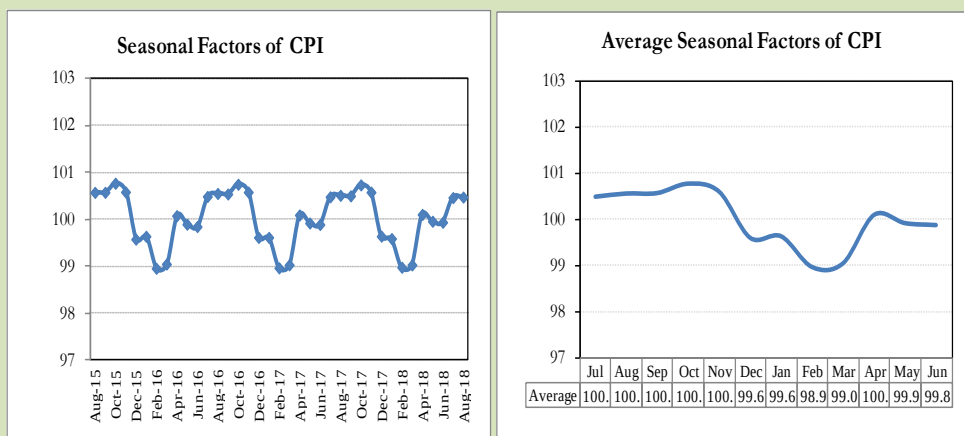
8. Seasonal Adjustment in CPI

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 2018 has been used for seasonal adjustment analysis. The seasonal analysis is carried out without taking trading-day or Islamic calendar month's effects.

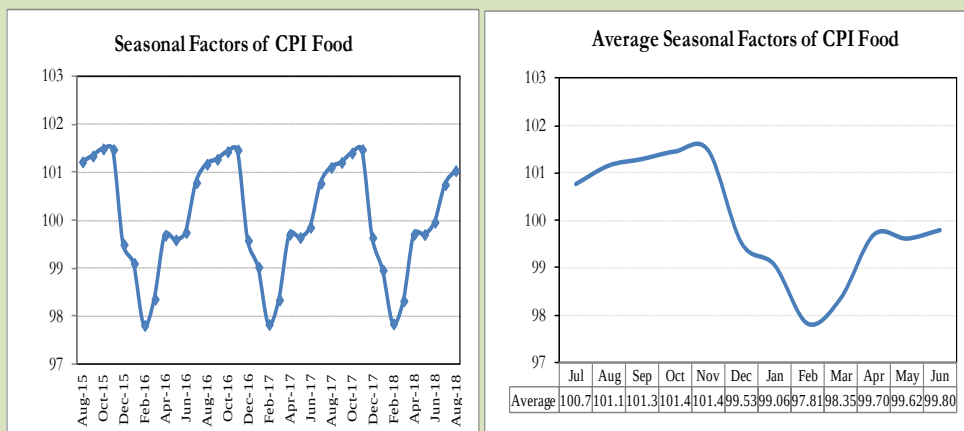
Figure 8.1 reveals that seasonality in CPI has been increasing over the period of last four years. Average seasonal factors reveal strong seasonality during the calendar year. There is an upward seasonality during the months from July to November and downward seasonality in the remaining months of the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

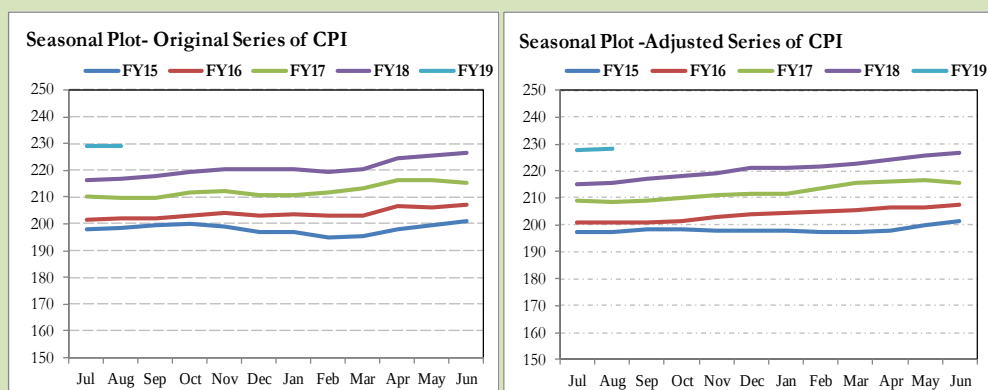
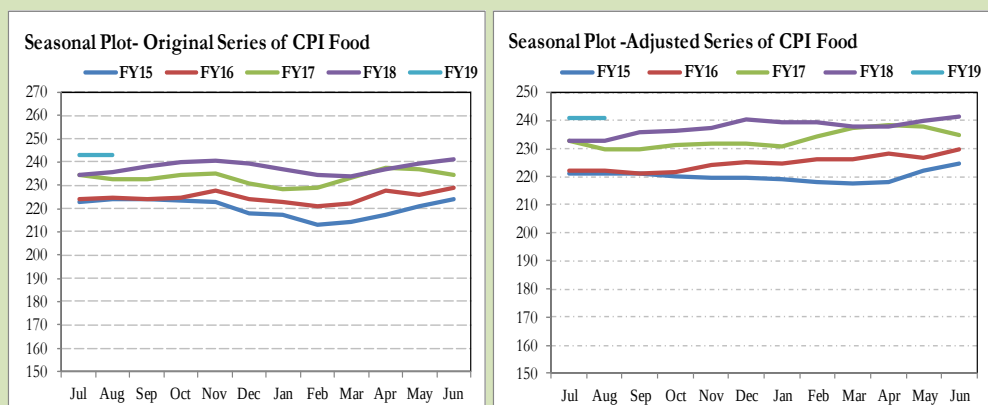


Fig. 8.4 Seasonal Plots of CPI (Food)



Seasonally adjusted CPI for August 2018 stood at 228.18 against 229.27 in original series showing decrease of 1.09 on account of adjustment of upward seasonality in August 2018.

Seasonally adjusted CPI food group for August 2018 stood at 240.75 against 243.25 in original series showing decrease of 2.50 on account of adjustment of upward seasonality in August 2018.

Month-on-month change of seasonally adjusted CPI series stood at 0.19% reflecting an increase during August 2018 over previous month and an increase of 0.21% in original series.

Month-on-month change of seasonally adjusted CPI food group series stood at -0.08% reflecting decrease during August 2018 over previous month and an increase of 0.21% 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 2018 (corresponding to the seasonally adjusted month-on-month rate) is 2.36 percent.

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

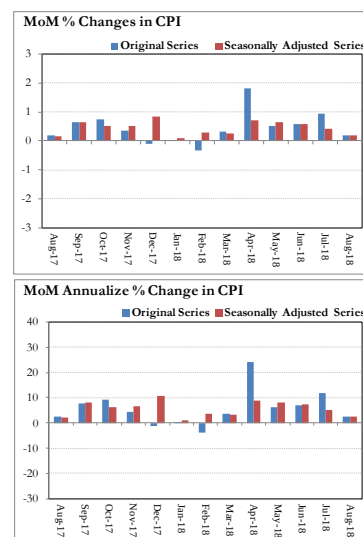
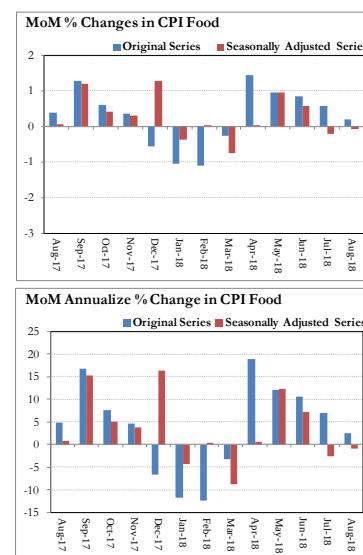


Fig. 8.6 Month-on-Month Percent Changes in CPI Food



Annexure A

Table A1: CPI Inflation by Groups (percent)							
	Weight	MoM change			YoY change		
		Aug-17	Jul-18	Aug-18	Aug-17	Jul-18	Aug-18
I. Food Group	37.5	0.4	0.6	0.2	1.2	3.5	3.3
Food & Non-Alcoholic Beverages	34.8	0.4	0.6	0.2	2.2	3.5	3.3
Alcoholic Beverages & Tobacco	1.4	-0.1	-0.3	-0.1	-16.2	2.3	2.4
Restaurant & Hotels	1.2	0.0	0.1	0.6	4.8	5.3	6.0
II. Non-Food Group	62.5	0.1	1.2	0.2	5.0	7.4	7.6
Clothing & Footwear	7.6	0.2	0.3	0.2	3.9	6.5	6.5
Housing, Water, Elect, Gas &	29.4	0.0	1.5	0.0	5.3	5.9	6.0
Furnishing & Household Equip.	4.2	0.1	0.3	0.4	2.6	5.9	6.2
Health	2.2	0.1	0.1	0.2	12.5	5.5	5.7
Transport	7.2	-0.3	4.1	1.0	2.7	15.7	17.3
Communication	3.2	0.1	0.0	0.1	1.6	0.6	0.6
Recreation & Culture	2.0	0.1	0.2	0.6	0.3	6.4	6.9
Education	3.9	0.0	0.0	0.0	10.9	13.0	12.9
Miscellaneous	2.8	0.6	0.5	-0.4	4.8	7.4	6.3
Headline	100.0	0.2	0.9	0.2	3.4	5.8	5.8

Table A2: Distribution of Price changes (YoY) of CPI basket											
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)	
		Aug-17	Aug-18	Aug-17	Aug-18	Aug-17	Aug-18	Aug-17	Aug-18	Aug-17	Aug-18
I. Food Group	3.3	128	128	45	24	47	46	24	30	12	28
Food & Non-Alcoholic Beverages	3.3	116	116	42	23	43	40	19	29	12	24
Alcoholic Beverages & Tobacco	2.4	6	6	3	1	2	3	1	0	0	2
Restaurant & Hotels	6.0	6	6	0	0	2	3	4	1	0	2
II. Non-Food Group	7.6	348	348	83	40	176	112	72	129	17	67
Clothing & Footwear	6.5	59	59	9	3	33	19	17	30	0	7
Housing, Water, Elect, Gas & other Fuels	6.0	36	36	11	12	12	5	12	12	1	7
Furnishing & Household Equip. Maintenance etc	6.2	69	69	6	0	52	21	11	39	0	9
Health	5.7	39	39	8	5	18	23	7	6	6	5
Transport	17.3	43	43	26	9	12	11	4	7	1	16
Communication	0.6	12	12	3	5	4	5	3	0	2	2
Recreation & Culture	6.9	39	39	16	4	18	14	4	12	1	9
Education	12.9	16	16	1	0	5	3	6	4	4	9
Miscellaneous	6.3	35	35	3	2	22	11	8	19	2	3
Overall	5.8	476	476	128	64	223	158	96	159	29	95
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, 2018					
Top 15 Contributors		Weights	YoY Change		Weighted Contribution
Items/ Contributors			Aug-17	Aug-18	
Ranked by Weighted Contribution					
1	House Rent	21.81	7.19	7.58	25.00
2	Education	3.94	10.85	12.93	10.05
3	Motor Fuel	3.03	6.41	27.95	9.64
4	Transport Services	2.70	0.10	14.16	5.85
5	Milk Fresh	6.68	3.62	3.99	5.81
6	Meat	2.43	7.65	10.48	5.71
7	Tomatoes	0.43	-19.85	62.43	3.45
8	Wheat Flour	4.16	-2.90	4.45	2.97
9	Fresh Vegetables	1.71	-6.26	5.87	2.10
10	Cotton Cloth	1.73	3.22	6.58	2.09
11	Rice	1.58	13.95	8.63	1.96
12	Tailoring	0.88	8.58	7.81	1.77
13	Ready Made Food	1.23	4.77	5.95	1.61
14	Personal Equipments	0.84	3.51	7.84	1.58
15	Footwear	1.55	0.57	7.48	1.53
Total		54.72			81.14
Bottom 15 Contributors					
1	Chicken	1.36	14.15	-14.97	-2.89
2	Potatoes	0.46	9.74	-18.11	-1.75
3	Fresh Fruits	1.86	13.65	-3.11	-1.23
4	Sugar	1.04	-15.56	-6.91	-1.22
5	Pulse Mash (Washed)	0.21	-27.13	-24.24	-1.09
6	Pulse Moong	0.23	-18.21	-8.93	-0.39
7	Pulse Masoor	0.27	-18.38	-9.86	-0.37
8	Pulse Gram	0.24	-19.87	-6.71	-0.35
9	Gram Whole	0.16	-5.20	-6.99	-0.26
10	Besan	0.15	-14.81	-4.93	-0.16
11	Gur	0.02	-9.95	-2.68	-0.01
12	Motor Vehicle Tax	0.11	0.00	0.00	0.00
13	Electricity	4.40	0.00	0.00	0.00
14	Gas	1.58	0.00	0.00	0.00
15	Beans	0.03	3.56	0.57	0.00
Total		12.12			-9.72

Table A3.1: Top and Bottom 15 Contributors to CPI Inflation (MoM) in August, 2018

<u>Top 15 Contributors</u>		<u>MoM Change</u>		Weighted Contribution	
Items/ Contributors	Weights	Aug-17	Aug-18		
Ranked by Weighted Contribution					
1	Tomatoes	0.43	15.63	47.59	78.03
2	Onion	0.52	6.50	25.95	58.13
3	Meat	2.43	1.65	1.42	22.65
4	Milk Fresh	6.68	0.68	0.46	18.76
5	Motor Fuel	3.03	5.07	1.43	16.74
6	Potatoes	0.46	9.40	6.84	13.67
7	Transport Services	2.70	4.98	0.53	6.73
8	Motor Vehicle	0.66	2.53	2.41	6.53
9	Rice	1.58	1.14	0.91	5.99
10	Recreation & Culture	0.86	0.33	1.91	4.72
11	Ready Made Food	1.23	0.12	0.60	4.60
12	Sugar	1.04	3.24	0.92	4.04
13	Construction Input Items	0.56	1.65	1.10	3.64
14	Wheat Flour	4.16	1.72	0.18	3.37
15	Personal Care	1.49	0.30	0.40	3.08
Total		27.86			250.68
Bottom 15 Contributors					
1	Chicken	1.36	-16.91	-20.11	-111.31
2	Fresh Vegetables	1.71	22.98	-3.46	-36.61
3	Fresh Fruits	1.86	-15.00	-3.02	-32.06
4	Personal Equipments	0.84	0.77	-1.71	-10.22
5	Eggs	0.46	12.01	-2.39	-4.74
6	Betel Leaves & Nuts	0.02	-8.91	-4.59	-1.48
7	Gram Whole	0.16	-0.31	-0.82	-0.76
8	Pulse Moong	0.23	1.87	-0.14	-0.15
9	Pulse Mash (Washed)	0.21	-0.53	-0.10	-0.09
10	Motor Vehicle Tax	0.11	0.00	0.00	0.00
11	Electricity	4.40	0.00	0.00	0.00
12	Gas	1.58	0.00	0.00	0.00
13	News Papers	0.19	0.00	0.00	0.00
14	Text Books	0.57	0.00	0.00	0.00
15	Postal Services	0.07	0.00	0.00	0.00
Total		13.78			-197.42

Table A3.2: Top Fifteen Contributors to CPI Inflation (YoY) in August, 2018					
Items/ Contributors		Weights	YoY Change		Weighted Contribution
			Aug-17	Aug-18	
A. Ranked by Percentage Change					
1	Betel Leaves & Nuts	0.02	3.70	152.19	0.69
2	Tomatoes	0.43	-19.85	62.43	3.45
3	Kerosene Oil	0.01	1.72	38.54	0.03
4	Motor Fuel	3.03	6.41	27.95	9.64
5	Transport Services	2.70	0.10	14.16	5.85
6	Education	3.94	10.85	12.93	10.05
7	Motor Vehicle	0.66	3.62	11.51	1.06
8	Dry Fruits	0.25	0.24	11.34	0.60
9	News Papers	0.19	4.22	10.96	0.31
10	Water Supply	0.50	5.06	10.63	0.72
11	Meat	2.43	7.65	10.48	5.71
12	Construction Input Items	0.56	2.62	10.00	1.13
13	Medical Test	0.32	4.51	9.35	0.47
14	Spices	0.54	-1.50	9.34	0.96
15	Utensils	0.32	4.71	9.31	0.55
Total		15.92			41.23
B. Ranked by Weights					
1	House Rent	21.81	7.19	7.58	25.00
2	Milk Fresh	6.68	3.62	3.99	5.81
3	Electricity	4.40	0.00	0.00	0.00
4	Wheat Flour	4.16	-2.90	4.45	2.97
5	Education	3.94	10.85	12.93	10.05
6	Communication & Apparatus	3.15	1.53	0.23	0.07
7	Motor Fuel	3.03	6.41	27.95	9.64
8	Transport Services	2.70	0.10	14.16	5.85
9	Meat	2.43	7.65	10.48	5.71
10	Vegetable Ghee	2.07	4.42	3.03	0.71
11	Fresh Fruits	1.86	13.65	-3.11	-1.23
12	Cooking Oil	1.75	3.29	2.34	0.45
13	Cotton Cloth	1.73	3.22	6.58	2.09
14	Fresh Vegetables	1.71	-6.26	5.87	2.10
15	Rice	1.58	13.95	8.63	1.96
Total		63.03			71.20
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 5.8 percent in August, 2018.					

Table A3.3: Top Ten Contributors to CPI Food Inflation (YoY) in August, 2018

Items/ Contributors		Weights	YoY Change		Weighted Contribution
			Aug-17	Aug-18	
A. Ranked by Weighted Contribution					
1	Milk Fresh	6.68	3.62	3.99	5.81
2	Meat	2.43	7.65	10.48	5.71
3	Tomatoes	0.43	-19.85	62.43	3.45
4	Wheat Flour	4.16	-2.90	4.45	2.97
5	Fresh Vegetables	1.71	-6.26	5.87	2.10
6	Rice	1.58	13.95	8.63	1.96
7	Ready Made Food	1.23	4.77	5.95	1.61
8	Tea	0.84	13.14	6.16	1.18
9	Spices	0.54	-1.50	9.34	0.96
10	Bakery & Confectionary	1.16	1.60	4.59	0.92
Total		20.76			26.67
B. Ranked by Percentage Change					
1	Betel Leaves & Nuts	0.02	3.70	152.19	0.69
2	Tomatoes	0.43	-19.85	62.43	3.45
3	Dry Fruits	0.25	0.24	11.34	0.60
4	Meat	2.43	7.65	10.48	5.71
5	Spices	0.54	-1.50	9.34	0.96
6	Rice	1.58	13.95	8.63	1.96
7	Sweet Meet	0.25	3.53	7.51	0.37
8	Tea	0.84	13.14	6.16	1.18
9	Jam, Tomato Ketchup & Pickle	0.25	1.85	6.06	0.26
10	Ready Made Food	1.23	4.77	5.95	1.61
Total		7.83			16.79
C. Ranked by Weights					
1	Milk Fresh	6.68	3.81	3.66	5.35
2	Wheat Flour	4.16	-2.07	3.46	2.34
3	Meat	2.43	6.07	11.03	5.92
4	Vegetable Ghee	2.07	4.28	2.79	0.65
5	Fresh Fruits	1.86	9.29	-5.80	-2.44
6	Cooking Oil	1.75	3.47	1.92	0.37
7	Fresh Vegetables	1.71	-10.76	10.60	3.78
8	Rice	1.58	13.30	9.38	2.11
9	Cigarettes	1.39	-16.14	0.12	0.04
10	Chicken	1.36	3.04	0.50	0.10
Total		25.01			18.22
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 3.3 percent in August, 2018.					

Table A3.4: Top Ten Contributors to CPI Non-food Inflation (YoY) in August, 2018					
Items/ Contributors		Weights	YoY Change		Weighted Contribution
			Aug-17	Aug-18	
A. Ranked by Weighted Contribution					
1	House Rent	21.81	7.19	7.58	25.00
2	Education	3.94	10.85	12.93	10.05
3	Motor Fuel	3.03	6.41	27.95	9.64
4	Transport Services	2.70	0.10	14.16	5.85
5	Cotton Cloth	1.73	3.22	6.58	2.09
6	Tailoring	0.88	8.58	7.81	1.77
7	Personal Equipments	0.84	3.51	7.84	1.58
8	Footware	1.55	0.57	7.48	1.53
9	Household Servent	1.04	1.97	6.55	1.38
10	Personal Care	1.49	6.12	4.85	1.31
Total		39.03			60.21
B. Ranked by Percentage Change					
1	Kerosene Oil	0.01	1.72	38.54	0.03
2	Motor Fuel	3.03	6.41	27.95	9.64
3	Transport Services	2.70	0.10	14.16	5.85
4	Education	3.94	10.85	12.93	10.05
5	Motor Vehicle	0.66	3.62	11.51	1.06
6	News Papers	0.19	4.22	10.96	0.31
7	Water Supply	0.50	5.06	10.63	0.72
8	Construction Input Items	0.56	2.62	10.00	1.13
9	Medical Test	0.32	4.51	9.35	0.47
10	Utensils	0.32	4.71	9.31	0.55
Total		12.24			29.82
C. Ranked by Weights					
1	House Rent	21.81	7.19	7.58	25.00
2	Electricity	4.40	0.00	0.00	0.00
3	Education	3.94	10.85	12.93	10.05
4	Communication & Apparatus	3.15	1.53	0.23	0.07
5	Motor Fuel	3.03	6.41	27.95	9.64
6	Transport Services	2.70	0.10	14.16	5.85
7	Cotton Cloth	1.73	3.22	6.58	2.09
8	Gas	1.58	0.00	0.00	0.00
9	Footware	1.55	0.57	7.48	1.53
10	Personal Care	1.49	6.12	4.85	1.31
Total		45.39			55.56
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 7.6 percent in August, 2018.					

Table A4: Distribution of Price Changes (YoY) - Selected CPI Items: August, 2018

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	Garlic, Pulse Mash (Washed), Potatoes, Mango Kalmi, Chicken Farm Broiler (Live), Apple, Pulse	Wheat Flour Bag, Jam Ahmed/Mitchelles, Wheat Flour Avg. Qty, Patties (Vegetables), Powder Milk (Nido 400Gm, Tea Leaves	Beef With Bone Av.Qlty., Pistachio Av.Qlty., Pastry Av.Qlty., Cardamom Small Av.Qlty, Rice Basmati	Tomatoes, Coconut Dry Av.Qlty., Chillies Powder Loose, Pomegranate (Annar), Lady Finger, Brinjal, Aloo Bukhara, Bottlegourd, Cuminseed White National, Sweetmelon
Alcoholic Beverages & Tobacco	Morven Gold 20,S, Cigarettes Capstan 20,S, Cigarettes K-20,S,	Cigarettes Gold Leaf 20,S, Cigarettes Capstan 20,S, Cigarettes K-20,S,	385/386, Groundnuts (With	(Canna) Salt Powdered (National/Shar) Raisins, Betel Nuts, Betel Leaves,
Clothing & Footwear	Gents Shoe, Art 1109 Servis, Gents Sandal Bata, Gents Shoes Paul Bata,	Heavy Wt Suiting Law.Pur Av. Qlty, Awami-Suit W & W (Boys) 24"/26", Vest For Men Av.Qlty., Pullover Gents Oxford/Bon, Pant Cloth Wash & Wear Av.Qlty, Secondhand	Tailoring Charges Pant (Men), Long Cloth 57" Gul Ahmed/Al Karam, Handkerchief Sup. Qlty Pak, School Uni. Pant,Shirt Boys, Brassier Av.Qlty, Chaddar (W/Wear)	Ladies Sandal Bata, Child Shoe Power Lite Bata, Frock W/Wear Girls, Tailoring Shirt, Ladies Spoung Chappal Bata, Shoe Polish Charges Avg. Gloves Av.Qlty,
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, Elect. Charges	Cement (Local), Bricks (New) Ist Class, Cement Blocks (6"X8"X12"), Sand (Black Pit Sand), Firewood Whole,	House Rent For Q-Iii, Electrician Wage Rate(P/Pnt), Electrician Wage Rate(P/Day), House Rent For Q-Iv, House Rent For Q-Ii, House Rent For O-V, House Rent	Kerosene Oil, Iron Bar (M.S. Bar) 1/2", Synthetic Enemal Ici, Plumber Wage Rate, Synthetic Enemal Robialac, Carpanter Wage Rate, Water Charges Per House,
Furnishing & Household Equip. Maintenance etc		Cot Iron (With Niwar)Av.Qlty, Carpet Plain Av. Qlty, Pedestal Fan 22" Super Qlty, Table Shesham Wood, Washing Powder 1000	Chair Shesham Wood, Mattress Single(4"Thick), Almirah (Steel), Bed Sheet Single Bed Sup.Qlty, Sewing Machine (Singer), Sewing Machine	Single Bed Without Foam, Tea Set Pak. China Wear 21 Pcs, Non Stick Cooking Pan, Thermos Starvac 1 Ltr, Frying Pan Steel Avg. Qlty, Elect. Iron Philips, Water Set Jug+6 Glasses, Toilet Paper Roll (R.Petal), Bulb Philips 100-Watt,
Health	Calcium Syrup Sandoz, Sancos Syrup (50 ML), Burnol Cream 30 Gm, Vicks Vaporub/ Balm, Flagyl Tab. 200 Mg.,	Cotton Bandage 2" - 4", Sugar Test (Random/Fasting), Cac. 1000 Tab, Phenergan Syrup 120 ML., Panadol Tab. Extra/Plain, Jouhar Joshanda,	Doctor (Mbbs) Clinic Fee, Ecg Charges, Trisil Tab., Entox Tab., Gripe-Water Woodward, Thermometer China,	Dettol (Medium), Glycrine Small Bottle, Urine Test (Dr) Charges, Blood Test (Cp) Charges, X-Ray (Chest) Charges,
Transport	Train Fare Ist Slp. > 500, Train Fare Ist Slp.101-500, Train Fare A/C Slp > 500K, Train Fare A/C Slp. 1-100, Train Fare Eco. > 500 Km.,	Tyre Motor Cycle Without Tube, Car Service Charges, Tyre Car With Tube General, Taxi 4 Seater Fare, Bicycle With Tyres & Tube, Cycle	Suzuki Fare Min.Within City, Train Fare A/C Slp.101-500, Bus Fare Max (Within City), Minibus Fare Min.Within City, Tyre Puncture Charges,	Train Fare Eco. 1-100 Km., Bus Fare Outside City (Non A/C), High Speed Diesel Hsd, Bus Fare Outside City (A/C), Petrol Super, Train Fare Ist Slp. 1-100, Train Fare Eco. 101-500 K, Air Fare Economy Class., Gas Cylinder S.Size
Communication	Telephone Charges Local Call, Telephone Charges Outside City, U.M.S. Reg Charges Min., Mobile Cell	Internet Charges, Fax Charges (Local), Mobile Set Nokia/Sony/Ericsson Av.Qlty, Postal Envelope Domestic,		T.C.S. Ch. Min.Within Zone, Telephone Set Av. Qlty,
Recreation & Culture	Maths Book Class Ix Or X, Maths Book Ist.Year (T.B. Board), V.C.P. Panasonic/Lg/National, Tv Licence Fee Domestic,	English Book Class V1, Pen Ink Dollor 57 MI Bottle, Computer Cd (Tdk/Imation), Urdu Book Ba/B.Sc, T.V. 20" Colored Sony, Personnel Computer (Branded), Dvd/Vcd	Fountain Pen Hero/Wings/China, Weekly "Akhbar-E-Jahan", Pencil Goldfish/Deer, Exercise Book Lined 80/10, English Book Class Ix Or X, Urdu Book Ist	Cinema A/C High Class, Cinema Non-A/C High Class, English Book Ba/B.Sc, Pakistan Studies Book Ba/B.Sc, Photostate Paper 70 Gm, Urdu Book Class Ix/X (T.B.Board), Daily "Nawa-E-Waqt", Daily "Jang", Daily "Dawn",
Education		Mba Tuition Fee, Coaching Charges For Class Xi/ Xii Science Group, I.T. Tuition Fees,	Pvt School Fee Eng.Med (Class-Vi), Coaching Fee For Class Ix/ X, Pvt School Fee Eng.Med (Class-X), Pvt	Govt. University Fee Msc/ Ma, Govt. Engg. Coll. Fee Ist Year, Govt. College Fee Ist. Year, Govt. College Fee 4Th. Year, Govt. Med. College Fee Mbbs Ist Year, Pvt Med.College Fee
Restaurant & Hotels		Cooked Dal (Av. Hotel), Tea Prepared (Ordinary), Bread Tandoori St. Size,	Chicken Biryani Full/Double,	Cooked Mutton (Av. Hotel), Cooked Beef (Av. Hotel),
Miscellaneous	Toilet Soap Lifebouy 140 Gms, Toothpaste Macleans 70 Gms,	Disposable Razor Gillete-Ii, Toilet Soap Safeguard Bath Size, Hair Removing Cream (Eu-Cream), Toilet Soap Lux	Trunk Medium Size, Gold Tezabi 24 Ct, Shaving Charges, Nail Polish S.Miss/Medora, Beauty	Perfume Med.Size Medora/Broche, Wrist Watch Gents Citizen, Purse Ladies (Leather) Av. Qlty,

Table A5: City- wise CPI Inflation by Income Groups, August, 2018

	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	5.1	5.1	3.0	3.0	7.4	7.4	5.2	5.2	3.2	3.2	7.1	7.1
2 Islamabad	3.1	3.1	1.7	1.7	4.8	4.8	3.5	3.5	1.8	1.8	5.3	5.3
3 Lahore	3.3	3.3	1.6	1.6	5.5	5.5	3.3	3.3	1.5	1.5	5.5	5.5
4 Gujranwala	4.4	4.4	2.0	2.0	7.2	7.2	4.3	4.3	1.8	1.8	7.0	7.0
5 Sialkot	6.3	6.3	5.2	5.2	7.5	7.5	5.7	5.7	4.9	4.9	6.6	6.6
6 Faisalabad	6.0	6.0	1.9	1.9	10.9	10.9	6.4	6.4	2.1	2.1	11.0	11.0
7 Multan	3.5	3.5	2.2	2.2	5.0	5.0	3.5	3.5	2.1	2.1	4.9	4.9
8 Sargodha	5.3	5.3	4.9	4.9	5.8	5.8	5.1	5.1	4.5	4.5	5.7	5.7
9 Bahawalpur	3.5	3.5	3.4	3.4	3.7	3.7	3.8	3.8	3.5	3.5	4.0	4.0
10 Karachi	4.7	4.7	5.3	5.3	3.9	3.9	5.0	5.0	5.7	5.7	4.1	4.1
11 Hyderabad	4.4	4.4	3.9	3.9	5.1	5.1	4.8	4.8	4.2	4.2	5.4	5.4
12 Sukkur	3.5	3.5	0.6	0.6	6.9	6.9	4.2	4.2	1.6	1.6	6.9	6.9
13 Larkana	5.6	5.6	5.0	5.0	6.3	6.3	5.3	5.3	4.4	4.4	6.2	6.2
14 Peshawar	5.3	5.3	3.8	3.8	7.0	7.0	5.5	5.5	3.8	3.8	7.1	7.1
15 Bannu	3.9	3.9	2.8	2.8	5.1	5.1	4.3	4.3	2.7	2.7	5.7	5.7
16 Quetta	6.9	6.9	5.3	5.3	8.8	8.8	7.1	7.1	4.8	4.8	9.5	9.5
17 Khuzdar	2.4	2.4	-0.1	-0.1	5.3	5.3	2.5	2.5	-0.1	-0.1	5.4	5.4
	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	5.8	5.8	3.6	3.6	7.7	7.7	5.9	5.9	4.0	4.0	7.3	7.3
2 Islamabad	3.9	3.9	2.2	2.2	5.6	5.6	4.2	4.2	2.6	2.6	5.5	5.5
3 Lahore	3.7	3.7	1.5	1.5	6.1	6.1	4.1	4.1	1.4	1.4	6.7	6.7
4 Gujranwala	4.6	4.6	1.7	1.7	7.4	7.4	4.6	4.6	1.5	1.5	7.2	7.2
5 Sialkot	5.9	5.9	5.0	5.0	6.8	6.8	5.4	5.4	4.9	4.9	5.8	5.8
6 Faisalabad	7.0	7.0	2.5	2.5	11.4	11.4	7.6	7.6	2.9	2.9	11.5	11.5
7 Multan	3.7	3.7	2.0	2.0	5.3	5.3	3.4	3.4	1.6	1.6	5.0	5.0
8 Sargodha	5.5	5.5	4.6	4.6	6.3	6.3	5.7	5.7	4.2	4.2	6.8	6.8
9 Bahawalpur	4.2	4.2	3.7	3.7	4.7	4.7	4.3	4.3	3.5	3.5	5.0	5.0
10 Karachi	5.2	5.2	5.7	5.7	4.8	4.8	5.2	5.2	5.5	5.5	4.9	4.9
11 Hyderabad	5.3	5.3	4.3	4.3	6.3	6.3	5.3	5.3	4.6	4.6	6.1	6.1
12 Sukkur	5.1	5.1	1.6	1.6	8.4	8.4	5.4	5.4	1.6	1.6	8.6	8.6
13 Larkana	5.7	5.7	4.6	4.6	6.6	6.6	5.5	5.5	4.6	4.6	6.1	6.1
14 Peshawar	6.1	6.1	3.6	3.6	8.4	8.4	6.1	6.1	3.3	3.3	8.2	8.2
15 Bannu	4.6	4.6	2.8	2.8	6.2	6.2	3.9	3.9	2.2	2.2	5.3	5.3
16 Quetta	7.9	7.9	4.8	4.8	10.8	10.8	8.0	8.0	5.0	5.0	10.5	10.5
17 Khuzdar	3.1	3.1	0.1	0.1	6.2	6.2	3.2	3.2	0.2	0.2	5.7	5.7
	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	6.5	6.5	5.2	5.2	7.2	7.2	6.3	6.3	4.6	4.6	7.3	7.3
2 Islamabad	5.2	5.2	3.8	3.8	5.8	5.8	5.0	5.0	3.5	3.5	6.1	6.1
3 Lahore	4.9	4.9	1.7	1.7	6.8	6.8	4.4	4.4	1.6	1.6	6.6	6.6
4 Gujranwala	5.2	5.2	1.7	1.7	7.0	7.0	4.7	4.7	1.7	1.7	6.8	6.8
5 Sialkot	5.7	5.7	4.9	4.9	6.1	6.1	5.6	5.6	4.9	4.9	6.1	6.1
6 Faisalabad	9.1	9.1	4.4	4.4	11.5	11.5	7.6	7.6	3.0	3.0	10.8	10.8
7 Multan	4.3	4.3	1.6	1.6	5.7	5.7	3.9	3.9	1.8	1.8	5.3	5.3
8 Sargodha	6.3	6.3	5.2	5.2	6.8	6.8	5.7	5.7	4.7	4.7	6.3	6.3
9 Bahawalpur	5.7	5.7	4.9	4.9	6.0	6.0	4.6	4.6	4.1	4.1	4.9	4.9
10 Karachi	5.6	5.6	5.5	5.5	5.6	5.6	5.4	5.4	5.5	5.5	5.3	5.3
11 Hyderabad	5.8	5.8	4.2	4.2	6.6	6.6	5.3	5.3	4.4	4.4	6.0	6.0
12 Sukkur	5.5	5.5	2.1	2.1	7.2	7.2	4.9	4.9	1.6	1.6	7.2	7.2
13 Larkana	5.5	5.5	4.8	4.8	5.9	5.9	5.5	5.5	4.6	4.6	6.0	6.0
14 Peshawar	8.4	8.4	3.1	3.1	10.9	10.9	7.0	7.0	3.4	3.4	9.3	9.3
15 Bannu	4.3	4.3	1.7	1.7	5.5	5.5	4.2	4.2	2.4	2.4	5.3	5.3
16 Quetta	8.4	8.4	4.8	4.8	10.2	10.2	7.9	7.9	4.9	4.9	9.9	9.9
17 Khuzdar	4.5	4.5	0.1	0.1	6.7	6.7	2.9	2.9	0.0	0.0	4.9	4.9

Table A6: City- wise CPI Inflation (YoY) August, 2018

City	High inflation cities			City	Low inflation cities		
	General	Food	Non-food		General	Food	Non-food
Mithi	10.7	8.1	12.4	Vehari	5.7	3.4	7.2
D. I. Khan	9.8	4.0	13.6	Sargodha	5.7	4.7	6.3
Dadu	8.6	2.7	12.8	Sialkot	5.6	4.9	6.1
Turbat	8.4	3.6	11.0	Larkana	5.5	4.6	6.0
Quetta	7.9	4.9	9.9	Sahiwal	5.5	2.1	7.5
Faisalabad	7.6	3.0	10.8	Karachi	5.4	5.5	5.3
Peshawar	7.0	3.4	9.3	Hyderabad	5.3	4.4	6.0
Loralai	6.7	2.2	9.6	Mianwali	5.2	1.5	7.4
Wazirabad	6.4	2.7	8.9	Nawabshah	5.2	4.3	5.8
Attock	6.4	6.2	6.5	D. M. Jamali	5.1	3.3	6.3
Jhelum	6.3	5.7	6.6	Islamabad	5.0	3.5	6.1
Rawalpindi	6.3	4.6	7.3	Sukkur	4.9	1.6	7.2
Gawadar	6.1	3.1	8.1	Mirpukhas	4.8	4.1	5.2
Bahawalnagar	6.0	1.7	8.8	Gujranwala	4.7	1.7	6.8
Mardan	5.8	6.1	5.7	Bahawalpur	4.6	4.1	4.9
				Mingora	4.5	4.1	4.7
				Abbottabad	4.4	4.5	4.3
				Lahore	4.4	1.6	6.6
				D. G. Khan	4.3	1.8	5.9
				Bannu	4.2	2.4	5.3
				Multan	3.9	1.8	5.3
				R. Y. Khan	3.6	-0.5	6.3
				Muzaffargarh	3.4	1.5	4.8
				Khuzdar	2.9	0.0	4.9
				Jhang	2.2	-2.5	5.2

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-17	Jul-18	Aug-18	Aug-17	Jul-18	Aug-18
<u>Up to Rs. 8000</u>						
General	0.4	1.2	0.4	2.4	4.7	4.6
Food	0.7	1.4	0.5	0.2	3.1	2.9
Non-food	0.1	1.0	0.2	5.0	6.6	6.7
<u>Rs. 8001- 12000</u>						
General	0.3	1.0	0.3	2.7	4.9	4.8
Food	0.6	1.1	0.4	0.6	3.2	3.0
Non-food	0.1	1.0	0.2	4.9	6.6	6.7
<u>Rs. 12001- 18000</u>						
General	0.3	1.0	0.2	2.8	5.1	5.1
Food	0.5	0.8	0.3	0.7	3.3	3.1
Non-food	0.1	1.1	0.2	4.9	6.8	6.9
<u>Rs. 18001- 35000</u>						
General	0.2	0.9	0.2	2.9	5.5	5.5
Food	0.4	0.6	0.2	0.9	3.4	3.2
Non-food	0.1	1.1	0.2	4.6	7.2	7.4
<u>Above Rs. 35000</u>						
General	0.1	0.9	0.2	4.0	6.5	6.6
Food	0.3	0.1	0.1	2.0	3.9	3.7
Non-food	0.0	1.3	0.2	5.0	7.8	8.0
<u>All income groups</u>						
General	0.2	0.9	0.2	3.4	5.8	5.8
Food	0.4	0.6	0.2	1.2	3.5	3.3
Non-food	0.1	1.2	0.2	5.0	7.4	7.6

Table A8: SPI Item-wise Price Movements

Sr.No.	Items	Unit	Prices	Percentage change	
			Aug-18	YoY	MoM
1	Wheat	10Kg.	332.4	4.3	0.3
2	Wheat Flour Bag	10Kg.	385.6	6.9	0.1
3	Rice Basmati Broken	Kg.	75.9	8.3	0.6
4	Rice Irri-6/9	Kg.	54.0	7.7	0.7
5	Bread Plain Med.Size (340-400 Gm.)	Each	42.6	3.7	0.2
6	Beef	Kg.	374.4	9.7	0.6
7	Mutton	Kg.	782.5	10.7	0.2
8	Chicken Live (Farm)	Kg.	122.8	-10.3	-23.1
9	Milk Fresh	Litr	85.5	4.4	0.3
10	Curd	Kg.	102.0	4.1	0.3
11	Milk Powdered Nido	500G	385.1	3.3	0.0
12	Egg Hen (Farm)	Doz.	96.4	-0.6	-1.7
13	Mustard Oil	Kg.	187.7	2.8	0.3
14	Cooking Oil (Tin)	2.5Ltr	479.7	2.0	0.3
15	Veg. Ghee (Tin)	2.5Kg.	473.8	2.2	0.3
16	Veg.Ghee Loose	Kg.	150.2	3.4	0.5
17	Bananas	Doz.	74.4	-2.2	-14.0
18	Masoor Pulse Washed	Kg.	113.3	-7.2	0.8
19	Moong Pulse Washed	Kg.	114.0	-8.0	0.0
20	Mash Pulse Washed	Kg.	146.3	-21.8	-1.5
21	Gram Pulse Washed	Kg.	117.1	-4.1	1.7
22	Potatoes	Kg.	33.3	-14.0	1.3
23	Onions	Kg.	41.9	-9.6	21.5
24	Tomatoes	Kg.	67.8	17.2	19.3
25	Sugar	Kg.	55.6	-2.3	0.7
26	Gur	Kg.	82.9	-2.1	2.3
27	Salt Powdered Loose (Lahori)	Kg.	11.7	9.1	0.8
28	Red Chillies Powder Loose	Kg.	340.2	30.8	-1.6
29	Garlic	Kg.	123.8	-35.9	1.5
30	Tea (Yellow Lable 200 Gm.)	200Gm.	203.6	5.0	0.8
31	Cooked Beef Plate	Each	113.7	21.6	1.6
32	Cooked Dal Plate	Each	61.7	7.8	0.4
33	Tea Prepared (Sada)	Cup	21.6	2.4	0.6
34	Cigarettes K-2 (20'S)	20'S	51.1	0.7	-0.2
35	Long Cloth (Coarse Latha)	Mtr.	231.8	9.2	0.0
36	Shirting	Mtr.	178.6	5.5	0.0
37	Lawn	Mtr.	287.6	12.4	0.0
38	Georgette (Voil Printed)	Mtr.	132.1	5.2	0.0
39	Sandal Gents Bata	Pair	699.0	0.0	0.0
40	Chappal Spng.Bata (Gents)	Pair	199.0	11.1	0.0
41	Sandal Ladies Bata	Pair	599.0	19.2	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	122.4	55.1	-0.4
45	Firewood	40Kg	626.3	2.8	0.0
46	Energy Savor 14 Watt	Each	171.2	2.0	0.0
47	Washing Soap (200-250 Gm.)	Cake	28.1	8.4	1.1
48	Match Box	Each	2.4	6.3	1.3
49	Petrol	Litr	96.2	36.3	-1.1
50	Diesel	Litr	113.9	44.6	-1.3
51	L.P.G.(11 Kg Cylander.)	Each	1496.6	32.8	15.8
52	Tele. Local Call	Call	3.9	0.0	0.0
53	Bath Soap Lifebouy (Standard)	Cake	40.3	-3.3	1.5
Maximum				55.1	21.5
Median				3.7	0.3
Minimum				-35.9	-23.1

Table A9: Distribution of Price Changes (YoY) - WPI Items: August, 2018				
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	Edible Roots/Potatos, Poultry, Pulses, Sugar Crops, Hides And Fur Skins,Raw, Cotton Seeds, Fish Live Fresh Or Chilled,	Eggs, Raw Animal Material/Wool, Fuel Wood In Logs,	Unmanufactured Tobacco, Rice, Other Oil Seeds, Milk From Bovine Animals, Wheat, Fresh Fruits,	Millet/Bajra, Sorghum/Jowar, Fibre Crops, Stimulant And Spice Crops, Dry Fruits, Maize, Vegetables,
Ores & Minerals, Electricity Gas & Water	Electrical Energy, Coal Not Agglomerated,	Natural Gas Liquified,	Salt & Pure Sodium Chloride,	
Food Products, Beverages and Tobacco, Textiles, Apparel and Leather Products	Sugar Refined, Leather With Out Hairs, Other Cereal Flour, Sugar Confectionary, Other Leather N.E.C, Beverages, Silk And Reyon Fabrics, Nylon Yarn, Woolen Carpets, Chocolate, Bed Sheets, Other Food Products,	Cotton Fabrics, Dairy Products N.E.C, Wheat Flour, Vegetable Ghee, Fruit Juices, Hosiery Products, Vegetables & Fruit Juices, Ready Made Garments, Vegetable Oil Refined, Woven Fabrics, Spices, Milk And Cream In Solid Form, Synthetic Carpets, Tobbaco Products, Other Fabrics,	Blended Yarn, Coffee And Tea, Ice Cream, Blankets, Oil Cakes, Quilts, Mineral Water, Processed Liquid Milk,	Cotton Yarn, Footwears, Dried Fruits & Nuts, Meat Of Animals, Towels,
Other Transportable Goods except Metal Products, Machinery and Equipments	Coke, Matches,	Ceramics And Sanitary, Mobil Oil, Printing Paper, Bed Foams, Timber, Dying Materials, Insecticised, Medicines, Pesticides, Glass Sheets, Auto Tyres, Bricks Blocks And Tiles, Soaps & Detergent, Other Glass Articles,	Cement, Plastic Products,	Kerosine Oil, Furnace Oil, Diesel Oil, Motor Sprit, Hard Board, Paints & Varnishes, Chemicals, Fertilizers,
Metal Product Machinery & Equipment	Engines And Motors, Vacuum Pumps, Pig Iron, Concrate Mixer, Radio And Television, Cultivators, Lathe Machines, Chuff Cutter,	Steel Products, Lighting Equipments, Bicycles, Air Conditioners, Electrical Wires,	Pipe Fittings, Tractors, Motor Cycles, Refrige,Wash& Sew Mach,Iron,Fan,	Steel Bars & Sheets, Motor Vehicales,

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

Items and specification	Weights	Index		
		Aug-17	Jul-18	Aug-18
General	100.00	216.61	228.80	229.27
Food & Non-Alcoholic Beverages.	34.83	230.99	238.08	238.58
1 Wheat	0.35	190.80	198.49	198.97
2 Wheat Flour	4.16	203.10	211.75	212.13
3 Wheat Product	0.10	212.62	213.01	213.31
4 Besan	0.15	279.13	261.62	265.36
5 Rice	1.58	182.03	195.96	197.74
6 Cereals	0.16	255.72	263.90	264.58
7 Bakery & Confectionary	1.16	218.89	228.08	228.93
8 Nimco	0.46	255.83	260.65	260.84
9 Meat	2.43	284.04	309.43	313.81
10 Chicken	1.36	179.73	191.31	152.83
11 Fish	0.30	216.37	228.91	228.91
12 Milk Fresh	6.68	276.02	285.71	287.03
13 Milk Product	0.63	265.43	277.00	277.39
14 Milk Powder	0.11	234.41	244.99	245.56
15 Eggs	0.46	197.47	204.79	199.90
16 Mustard Oil	0.10	160.10	164.01	164.27
17 Cooking Oil	1.75	138.09	140.90	141.32
18 Vegetable Ghee	2.07	143.05	146.78	147.39
19 Dry Fruits	0.25	263.32	293.12	293.19
20 Fresh Fruits	1.86	267.92	267.66	259.58
21 Pulse Masoor	0.27	174.98	157.67	157.72
22 Pulse Moong	0.23	239.10	218.06	217.75
23 Pulse Mash (Washed)	0.21	272.32	206.51	206.30
24 Pulse Gram	0.24	276.43	257.38	257.89
25 Gram Whole	0.16	287.53	269.64	267.44
26 Beans	0.03	244.13	244.74	245.51
27 Potatoes	0.46	266.30	204.11	218.08
28 Onion	0.52	243.40	200.99	253.14
29 Tomatoes	0.43	162.16	178.46	263.39
30 Fresh Vegetables	1.71	264.85	290.45	280.39
31 Sugar	1.04	214.35	197.72	199.54
32 Gur	0.02	259.38	249.15	252.43
33 Honey	0.04	332.15	348.07	351.07
34 Sweet Meet	0.25	252.57	271.48	271.54
35 Beverages	1.20	226.10	233.36	233.42
36 Jam, Tomato Ketchup & Pickle	0.25	219.51	231.54	232.81
37 Condiments	0.27	270.57	285.60	286.39
38 Spices	0.54	238.53	259.44	260.82
39 Tea	0.84	289.16	306.22	306.97
Alcoholic Beverages, Tobacco	1.41	306.25	313.65	313.47
40 Cigarettes	1.39	307.18	307.93	308.24
41 Betel Leaves & Nuts	0.02	250.15	661.19	630.86
Clothing & Footwear	7.57	239.19	254.13	254.67
42 Cotton Cloth	1.73	232.48	247.24	247.77
43 Woolen Cloth	0.88	257.77	266.09	267.11
44 Ready Made Garments	0.97	247.56	264.02	264.49
45 Woolen Readymade Garments	0.40	258.31	266.61	266.61
46 Hosiery	0.51	249.96	265.98	266.49
47 Dopatta	0.44	246.66	263.12	265.73
48 Cleaning & Laundering	0.21	271.61	290.77	291.30

Table A10: Consumer Price Index Numbers by Major Groups and Composite Commodities					
Items and specification		Weights	Index		
			Aug-17	Jul-18	Aug-18
49 Tailoring		0.88	324.27	349.59	349.60
50 Footware		1.55	167.45	179.77	179.97
Housing, Water, Elect, Gas & Other Fuel		29.41	198.93	210.71	210.80
51 House Rent		21.81	191.49	206.00	206.00
52 Construction Input Item		0.56	254.56	276.97	280.01
53 Construction Wage Rate		0.33	245.58	265.71	267.25
54 Water Supply		0.50	171.58	189.09	189.82
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	197.81	272.04	274.04
58 Fire Wood Whole		0.23	291.56	298.03	298.70
Furnished H.Hold Equip.& Maint. Etc		4.21	228.05	241.18	242.20
59 Furniture		0.33	220.16	236.67	237.77
60 Household Textile		0.65	230.07	243.00	243.45
61 Household Equipment		0.59	183.18	190.99	192.31
62 Utensils		0.32	233.80	252.51	255.56
63 Plastic Products		0.25	211.37	225.98	227.91
64 Washing Soap & Detergent		0.79	232.80	241.08	242.53
65 Sewing Needle & Dry Cell		0.15	207.74	219.36	221.16
66 Household Servant		1.04	254.90	271.59	271.59
67 Marriage Hall Charges		0.08	249.20	266.62	266.62
Health		2.19	213.05	224.67	225.20
68 Drug Medicine		1.27	185.27	190.05	190.58
69 Medical Equipment		0.01	251.81	260.09	261.95
70 Doctor (MBBS) Clinic Fee		0.59	280.95	304.41	304.41
71 Medical Test		0.32	196.81	213.79	215.21
Transport		7.20	174.61	202.71	204.74
72 Motor Vehicle		0.66	176.59	192.28	196.91
73 Motor Vehicle Accessories		0.24	211.91	216.65	218.65
74 Motor Fuel		3.03	144.27	182.00	184.60
75 Mechanical Service		0.46	232.07	244.59	244.82
76 Motor Vehicle Tax		0.11	210.18	210.18	210.18
77 Transport Services		2.70	193.59	219.83	221.00
Communication		3.22	133.03	133.63	133.78
78 Postal Services		0.07	250.44	272.45	272.45
79 Communication & Apparatus		3.15	130.56	130.72	130.86
Recreation & Culture		2.02	196.33	208.71	209.89
80 Recreation & Culture		0.86	129.38	134.65	137.22
81 Text Books		0.57	287.98	304.43	304.43
82 News Papers		0.19	182.90	202.94	202.94
83 Stationery		0.40	216.82	235.12	235.55
Education		3.94	249.61	281.89	281.89
84 Education		3.94	249.61	281.89	281.89
Restaurants And Hotels		1.23	278.44	293.25	295.01
85 Ready Made Food		1.23	278.44	293.25	295.01
Miscellaneous Goods And Services		2.76	248.46	265.48	264.45
86 Personal Care		1.49	229.77	239.94	240.91
87 Cosmetics		0.39	205.72	222.96	224.25
88 Blades		0.03	197.80	204.43	205.13
89 Personal Equipments		0.84	302.99	332.42	326.73

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

Items and Specifications	Index		
	Aug-17	Jul-18	Aug-18
General	217.96	240.04	241.93
Agriculture Forestry & Fishery	250.96	274.85	274.04
1 Wheat	194.17	202.51	204.53
2 Maize	189.41	218.34	222.24
3 Rice	168.81	181.75	181.28
4 Sorghum/Jowar	209.74	305.26	293.20
5 Millet/Bajra	157.16	244.12	249.84
6 Vegetables	296.47	347.33	346.19
7 Fresh Fruits	284.12	328.17	298.81
8 Dry Fruits	233.30	285.82	275.54
9 Cotton Seeds	278.51	267.32	268.41
10 Other Oil Seeds	182.82	193.29	196.32
11 Edible Roots/ Potatoes	256.16	194.26	207.46
12 Stimulant And Spice Crops	269.90	318.90	322.59
13 Pulses	263.31	236.97	232.09
14 Sugar Crops	268.94	257.62	257.62
15 Fibre Crops	204.58	271.84	281.00
16 Unmanufactured Tobacco	290.62	317.53	316.51
17 Poultry	190.18	203.33	159.15
18 Milk From Bovine Animals	269.94	284.87	285.13
19 Eggs	199.48	214.76	206.97
20 Raw Animal Material/Wool	172.91	176.84	176.92
21 Hides And Fur Skins, Raw	100.98	97.06	97.22
22 Fuel Wood In Logs	279.63	283.56	283.56
23 Fishes Live Fresh Or Chilled	463.98	451.22	451.22
Ores/Minerals, Gas & Elect.	242.53	243.17	244.14
24 Coal Not Agglomerated	155.29	155.29	155.29
25 Natural Gas Liquefied	210.37	211.49	213.53
26 Salt & Pure Sodium Chloride	248.46	269.74	269.74
27 Electrical Energy	288.00	288.00	288.00
Food, Beverages, Tobacco, Textiles	226.39	243.73	247.95
28 Meat Of Animals	303.71	336.15	339.60
29 Vegetables & Fruit Juices	223.38	226.66	228.62
30 Dried Fruits & Nuts	263.87	298.38	299.69
31 Fruit Juices	182.38	186.08	188.66
32 Vegetable Oil Refined	155.87	159.08	158.54
33 Vegetable Ghee	126.04	130.51	130.77
34 Oil Cakes	228.42	242.30	244.38
35 Processed Liquid Milk	282.01	293.74	296.67
36 Milk And Cream In Solid Form	222.44	224.54	225.34
37 Ice Cream	266.02	266.02	286.26
38 Dairy Products N.E.C	268.85	278.41	279.65
39 Wheat Flour	186.18	191.95	193.24
40 Other Cereal Flour	226.59	215.20	217.45
41 Sugar Refined	221.26	207.93	210.94
42 Chocolate	100.00	100.00	100.00
43 Sugar Confectionary	128.44	127.25	127.25
44 Coffee And Tea	258.68	277.31	279.34
45 Spices	199.08	202.35	202.35
46 Other Food Products	294.50	294.50	294.50
47 Mineral Water	199.51	211.50	211.50
48 Beverages	172.85	172.63	172.63
49 Tobacco Products	318.37	318.37	319.65
50 Cotton Yarn	202.49	262.52	280.03
51 Nylon Yarn	143.99	143.99	143.99
52 Blended Yarn	183.38	197.90	200.05
53 Woven Fabrics	316.28	321.49	321.49
54 Cotton Fabrics	211.33	220.60	219.87
55 Other Fabrics	227.16	227.85	227.85

Inflation Monitor, August 2018

Table A11: Wholesale Price Index Numbers by Major Groups and Composite Commodities				
Items and Specifications		Index		
		Aug-17	Jul-18	Aug-18
56	Silk And Rayon Fabrics	188.89	188.81	188.81
57	Towels	276.14	305.52	305.52
58	Blankets	247.52	265.03	265.03
59	Bed Sheets	256.87	256.87	256.87
60	Quilts	208.42	222.32	222.32
61	Woolen Carpets	196.43	196.43	196.43
62	Synthetic Carpets	130.95	130.95	131.80
63	Hosiery Products	243.31	250.36	250.36
64	Ready Made Garments	201.37	204.85	204.85
65	Leather With Out Hairs	221.97	212.68	212.68
66	Other Leather N.E.C	207.31	207.02	207.02
67	Footwear's	145.51	168.09	168.09
Other Transportable Goods		170.93	214.04	216.87
68	Timber	231.53	237.00	239.89
69	Printing Paper	166.40	171.65	172.70
70	Hard Board	225.00	260.42	291.67
71	Coke	163.45	163.45	163.45
72	Motor Sprit	117.38	164.49	164.49
73	Diesel Oil	150.68	244.20	244.20
74	Kerosene Oil	117.12	229.00	229.00
75	Furnace Oil	101.72	171.20	175.33
76	Mobil Oil	201.29	206.18	209.31
77	Chemicals	180.49	196.45	206.63
78	Dying Materials	146.55	150.72	150.72
79	Fertilizers	215.94	236.33	241.32
80	Pesticides	306.06	312.32	312.32
81	Insecticides	142.41	144.49	145.90
82	Paints & Varnishes	294.56	332.15	354.53
83	Medicines	174.94	177.70	178.61
84	Soaps & Detergent	191.20	191.52	193.00
85	Auto Tyres	177.07	177.14	178.97
86	Plastic Products	225.88	240.35	240.38
87	Glass Sheets	298.97	304.55	304.55
88	Other Glass Articles	317.24	318.10	318.10
89	Ceramics And Sanitary	232.65	236.54	243.24
90	Bricks Blocks And Tiles	221.50	223.37	223.76
91	Cement	221.52	237.45	238.70
92	Bed Foams	170.33	175.33	176.50
93	Matches	171.36	171.36	171.36
Metal Product Machinery & Equip		177.02	186.28	186.72
94	Pig Iron	128.97	128.97	128.97
95	Steel Bars & Sheets	138.48	169.64	170.86
96	Pipe Fittings	215.66	234.48	234.48
97	Steel Products	177.56	177.24	182.68
98	Engines And Motors	116.98	116.98	116.98
99	Vacuum Pumps	123.69	123.69	123.69
100	Air Conditioners	200.10	203.80	203.80
101	Cultivators	190.66	190.66	190.66
102	Chuff Cutter	153.46	153.46	153.46
103	Tractors	201.75	216.82	216.82
104	Lathe Machines	241.06	241.06	241.06
105	Concrete Mixer	138.83	138.83	138.83
106	Refrige,Wash& Sew Mach, Iron,Fan	214.97	228.73	228.73
107	Electrical Wires	205.92	208.22	208.22
108	Lighting Equipments	170.73	174.04	174.04
109	Radio And Television	140.42	140.42	140.42
110	Motor Vehicles	195.36	218.11	218.11
111	Motor Cycles	125.89	134.21	134.21
112	Bicycles	187.65	191.22	191.22

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

Period			CPI			WPI			SPI *
Overall			Food	Non-food	Overall			Food	
2008-09			117.03	123.11	113.37	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	167.27	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	226.59	233.37	216.02	248.74	195.27	220.10
2017-18			220.62	232.95	237.59	223.52	253.34	204.61	223.60
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	
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	
	Aug	216.61	235.38	205.36	217.96	251.05	196.96	219.82	
	Sep	217.98	238.43	205.72	218.08	252.27	196.39	223.38	
	Oct	219.61	239.89	207.45	219.41	254.40	197.22	225.15	
	Nov	220.42	240.79	208.21	220.20	252.83	199.49	226.29	
	Dec	220.20	239.43	208.67	221.00	253.31	200.49	225.66	
2018	Jan	220.27	236.92	210.29	224.99	252.74	207.38	224.13	
	Feb	219.58	234.31	210.75	224.66	250.56	208.23	222.19	
	Mar	220.25	233.67	212.21	225.22	251.00	208.52	221.67	
	Apr	224.25	237.08	216.56	228.07	254.52	211.28	223.13	
	May	225.40	239.36	217.03	230.98	257.57	214.11	224.51	
	Jun	226.68	241.37	217.87	234.40	259.86	218.25	228.00	
	Jul	228.80	242.74	220.45	240.04	263.23	225.32	229.18	
	Aug	229.27	243.25	220.89	241.93	262.42	228.93	228.72	

*: all groups combined

Table A13: International Commodity Prices/Indices				
	18-May	18-Jun	18-Jul	18-Aug
Energy				
Crude Oil (US\$ per barrel) *	73.4	72.0	72.7	71.1
Energy Index (2010 = 100)	91.6	90.9	91.8	90.3
Food				
Rice (\$/MT)	451.0	427.0	398.0	405.0
Wheat (\$/MT)	213.8	219.4	218.3	236.6
Sugar (US cent/ pound)^	0.3	0.3	0.3	0.2
Palm Oil (\$/MT)	603.5	579.7	544.5	533.9
Soybean Oil (\$/MT)	719.1	685.3	665.4	654.0
Non-Food Non-Energy				
Cotton Outlook 'A' Index #^	2.1	2.2	2.1	2.1
Metal Price Index (2010 = 100)	96.4	96.8	88.0	85.6
Copper (\$/MT)	6,825.3	6,965.9	6,250.8	6,051.1
Aluminum (\$/MT)	2,299.7	2,237.6	2,082.2	2,051.5
Iron Ore (\$ cents/dry MT)	66.1	65.0	64.6	67.2
Tin (\$/MT)	20,858.8	20,660.5	19,729.8	19,228.8
Nickel (\$/MT)	14,366.5	15,105.7	13,793.9	13,411.4
Zinc (\$/MT)	3,059.9	3,088.6	2,656.1	2,512.0
Lead (\$/MT)	2,360.9	2,436.3	2,207.0	2,053.5
Uranium (\$/MT)@	22.7	22.7	25.8	26.3
DAP (\$/MT)	384.4	391.6	400.8	409.0
Urea (\$/MT)	221.9	224.0	252.5	260.0
Source: World Bank for all variables / indices except Uranium which is taken from Cameco (World Largest Uranium Producer)				
@ Data has been taken from Cameco website as it is not available in World Bank dataset.				
^ The measurement unit for sugar and Cotton is US cent/ pound in IMF data source, whereas it is US dollar / kg in World bank dataset. The result of two datasets can be reconciled using conversion formula: 1US \$ / kilogram = 45.359237 U.S. \$/MT = US\$ per metric tonne.				
* 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				

Table 14: CPI Data Series Original and Seasonally Adjusted					
Original Series					
Period	FY15	FY16	FY17	FY18	FY19
Jul	198.05	201.76	210.08	216.19	228.80
Aug	198.70	202.25	209.46	216.61	229.27
Sep	199.40	202.04	209.88	217.98	
Oct	199.81	203.03	211.57	219.61	
Nov	198.79	204.22	212.01	220.42	
Dec	196.79	203.06	210.57	220.20	
Jan	196.95	203.49	210.94	220.27	
Feb	195.13	202.98	211.54	219.58	
Mar	195.57	203.28	213.32	220.25	
Apr	198.16	206.43	216.30	224.25	
May	199.66	205.99	216.33	225.40	
Jun	200.89	207.30	215.45	226.68	
Seasonally Adjusted Series					
Jul	197.10	200.79	209.06	215.15	227.74
Aug	197.46	201.09	208.31	215.50	228.18
Sep	198.18	200.88	208.75	216.89	
Oct	198.24	201.48	210.00	218.01	
Nov	197.60	203.03	210.78	219.15	
Dec	197.70	203.92	211.38	220.99	
Jan	197.62	204.22	211.75	221.17	
Feb	197.20	205.11	213.75	221.84	
Mar	197.39	205.23	215.40	222.40	
Apr	198.01	206.26	216.09	224.01	
May	199.94	206.20	216.49	225.49	
Jun	201.30	207.62	215.68	226.82	

Table 15: CPI Food Data Series Original and Seasonally Adjusted					
Original Series					
Period	FY15	FY16	FY17	FY18	FY19
Jul	222.80	224.14	234.69	234.47	242.74
Aug	224.05	224.86	232.48	235.38	243.25
Sep	224.12	223.87	232.80	238.43	
Oct	223.74	224.86	234.68	239.89	
Nov	222.74	227.55	235.17	240.79	
Dec	218.08	223.90	230.69	239.43	
Jan	217.10	222.58	228.45	236.92	
Feb	213.15	221.07	229.19	234.31	
Mar	214.25	222.25	233.47	233.67	
Apr	217.26	227.53	237.50	237.08	
May	221.22	225.84	237.01	239.36	
Jun	223.84	228.95	234.37	241.37	
Seasonally Adjusted Series					
Jul	221.08	222.39	232.85	232.67	240.94
Aug	221.16	222.15	229.79	232.81	240.75
Sep	221.04	220.90	229.87	235.58	
Oct	220.36	221.55	231.36	236.57	
Nov	219.39	224.24	231.76	237.28	
Dec	219.39	225.04	231.66	240.30	
Jan	218.95	224.60	230.70	239.41	
Feb	217.98	226.03	234.28	239.48	
Mar	217.75	225.97	237.41	237.66	
Apr	217.92	228.23	238.19	237.77	
May	222.26	226.76	237.86	240.07	
Jun	224.67	229.53	234.71	241.46	

Table 16: CPI Monthly & Average Seasonal Factors

Period	FY15	FY16	FY17	FY18	FY19	Average
Jul	100.48	100.48	100.49	100.48	100.47	100.48
Aug	100.63	100.58	100.55	100.51	100.48	100.55
Sep	100.61	100.58	100.54	100.50		100.56
Oct	100.79	100.77	100.75	100.74		100.76
Nov	100.60	100.59	100.58	100.58		100.59
Dec	99.54	99.58	99.62	99.64		99.60
Jan	99.66	99.64	99.62	99.59		99.63
Feb	98.95	98.96	98.97	98.98		98.97
Mar	99.08	99.05	99.03	99.03		99.05
Apr	100.08	100.08	100.10	100.11		100.09
May	99.86	99.90	99.92	99.96		99.91
Jun	99.80	99.85	99.89	99.94		99.87

Table 17: CPI Food Monthly & Average Seasonal Factors

Period	FY15	FY16	FY17	FY18	FY19	Average
Jul	100.78	100.79	100.79	100.77	100.75	100.78
Aug	101.31	101.22	101.17	101.11	101.04	101.17
Sep	101.40	101.34	101.28	101.21		101.31
Oct	101.54	101.49	101.43	101.41		101.47
Nov	101.53	101.48	101.47	101.48		101.49
Dec	99.41	99.50	99.58	99.64		99.53
Jan	99.16	99.10	99.02	98.96		99.06
Feb	97.78	97.81	97.83	97.84		97.81
Mar	98.39	98.36	98.34	98.32		98.35
Apr	99.70	99.69	99.71	99.71		99.70
May	99.53	99.59	99.64	99.70		99.62
Jun	99.63	99.75	99.86	99.96		99.80

Table 18: CPI Month-on-Month % Change Original & Seasonally Adjusted					
Original Series					
Period	FY15	FY16	FY17	FY18	FY19
Jul	1.70	0.43	1.34	0.34	0.94
Aug	0.33	0.24	-0.30	0.19	0.21
Sep	0.35	-0.10	0.20	0.63	
Oct	0.21	0.49	0.81	0.75	
Nov	-0.51	0.59	0.21	0.37	
Dec	-1.01	-0.57	-0.68	-0.10	
Jan	0.08	0.21	0.18	0.03	
Feb	-0.92	-0.25	0.28	-0.31	
Mar	0.23	0.15	0.84	0.31	
Apr	1.32	1.55	1.40	1.82	
May	0.76	-0.21	0.01	0.51	
Jun	0.62	0.64	-0.41	0.57	
Seasonally Adjusted Series					
Jul	0.95	-0.25	0.69	-0.24	0.41
Aug	0.18	0.15	-0.36	0.16	0.19
Sep	0.37	-0.11	0.21	0.64	
Oct	0.03	0.30	0.60	0.52	
Nov	-0.32	0.77	0.37	0.52	
Dec	0.05	0.44	0.28	0.84	
Jan	-0.04	0.15	0.17	0.08	
Feb	-0.22	0.44	0.94	0.30	
Mar	0.10	0.06	0.78	0.25	
Apr	0.31	0.50	0.32	0.72	
May	0.97	-0.03	0.19	0.66	
Jun	0.68	0.69	-0.38	0.59	

Table 19: CPI Food Month-on-Month % Change Original & Seasonally Adjusted					
Original Series					
Period	FY15	FY16	FY17	FY18	FY19
Jul	2.68	0.13	2.50	0.04	0.57
Aug	0.56	0.32	-0.94	0.39	0.21
Sep	0.03	-0.44	0.14	1.29	
Oct	-0.17	0.44	0.81	0.61	
Nov	-0.45	1.20	0.21	0.37	
Dec	-2.09	-1.61	-1.90	-0.56	
Jan	-0.45	-0.59	-0.97	-1.05	
Feb	-1.82	-0.68	0.32	-1.11	
Mar	0.52	0.54	1.87	-0.27	
Apr	1.41	2.38	1.73	1.46	
May	1.82	-0.74	-0.21	0.96	
Jun	1.18	1.38	-1.11	0.84	
Seasonally Adjusted Series					
Jul	1.36	-1.02	1.45	-0.87	-0.22
Aug	0.03	-0.11	-1.32	0.06	-0.08
Sep	-0.05	-0.56	0.03	1.19	
Oct	-0.31	0.29	0.65	0.42	
Nov	-0.44	1.21	0.17	0.30	
Dec	0.00	0.36	-0.04	1.27	
Jan	-0.20	-0.20	-0.41	-0.37	
Feb	-0.44	0.64	1.55	0.03	
Mar	-0.10	-0.03	1.33	-0.76	
Apr	0.08	1.00	0.33	0.04	
May	1.99	-0.65	-0.14	0.97	
Jun	1.09	1.22	-1.33	0.58	



Figure A2: Frequency Distribution of Price Changes of CPI Items, August 2018

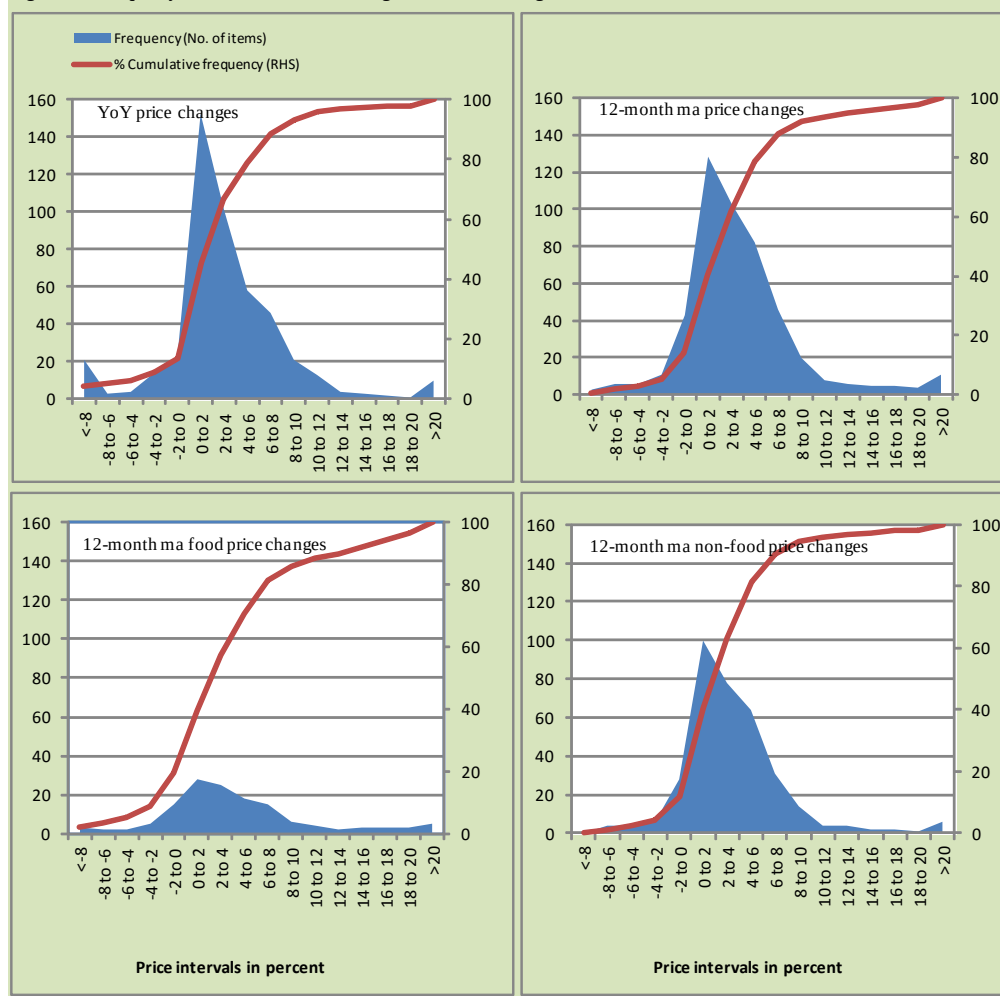


Figure A3: Frequency Distribution of Price Changes of WPI Commodities, August 2018

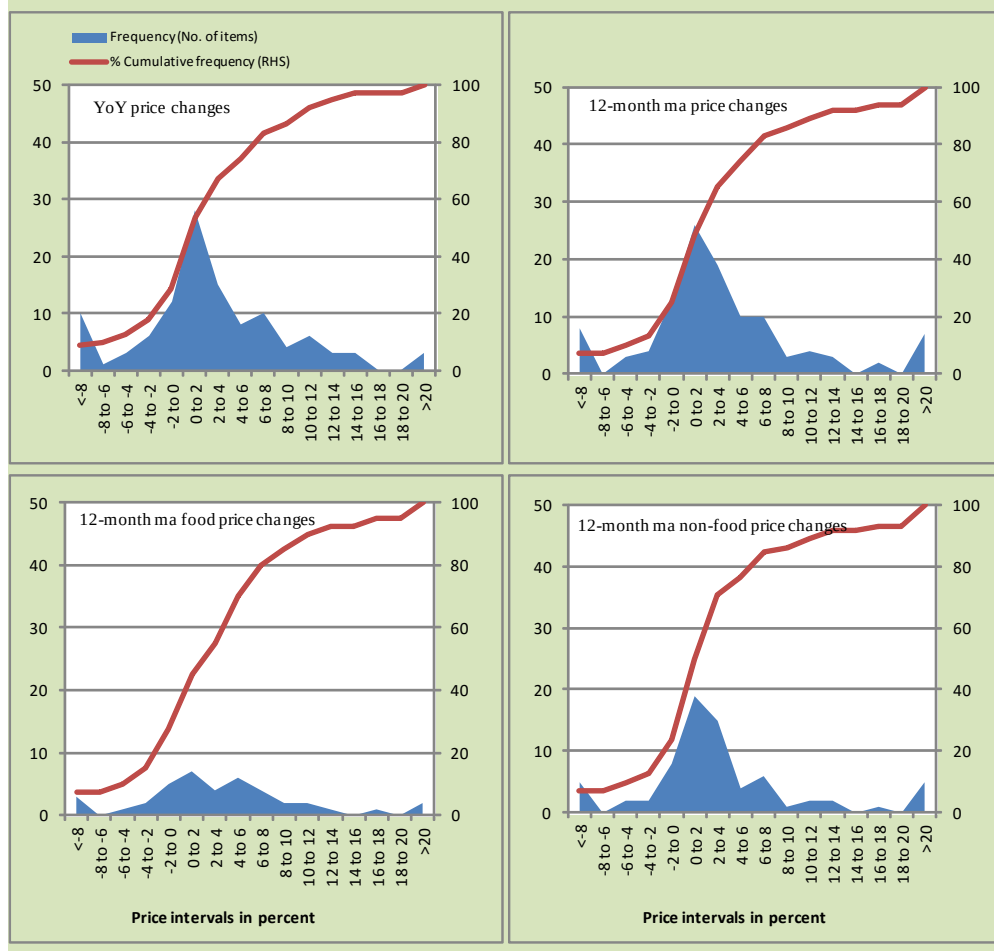
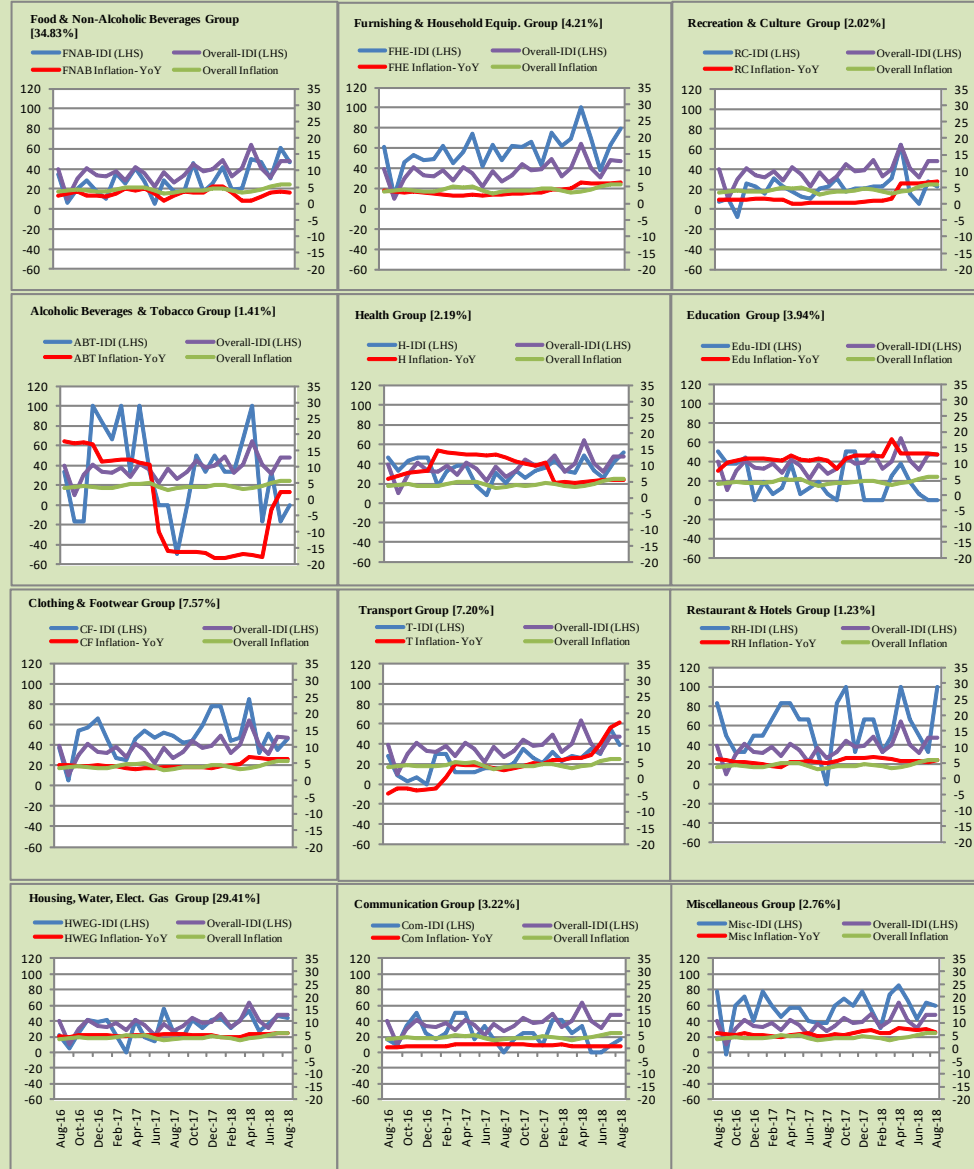


Figure A4: Group-wise/ Overall Inflation Diffusion Index (IDI) and respective/ overall YoY Inflation (percent)



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^{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

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

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:

$$IDI = \frac{\text{No. of items with positive MoM change in price} - \text{No. of items with negative MoM change in price}}{\text{No. of items for which prices are reported}}$$

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.