

Inflation Monitor

August 2019

(Old Base: 2007-08)



State Bank of Pakistan

Statistics & DWH Department

ISSN 1992-8327 (print)

ISSN 1992-8335 (online)

The analysis in this document is based on data

- Provided by Pakistan Bureau of Statistics (PBS), for domestic inflation analysis
- Retrieved from IMF & World Bank websites for global inflation analysis

http://www.sbp.org.pk/publications/inflation_Monitor

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Review

Inflation in Brief

1. Headline CPI inflation (2007-08=100) is recorded at level of 11.6 percent on year-on-year basis in August 2019 as compared to 10.3 percent in the previous month and 5.8 percent during corresponding month of last year.
2. CPI inflation on month-on-month basis is recorded at level of 1.4 percent in August 2019 as compared to 2.3 percent in the previous month and 0.2 percent during corresponding month of last year. Seasonally adjusted month-on-month CPI inflation is recorded at 1.27 percent in August 2019 compared to 1.85 percent in the previous month.
3. Core inflation (trimmed) on year-on-year basis is recorded at 8.5 percent in August 2019 as compared to 8.0 percent in the previous month and 5.9 percent during corresponding month of last year.
4. On month-on-month basis, the Core inflation (trimmed) is recorded at 0.6 percent in August 2019 as compared to 1.7 percent in the previous month and 0.2 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 8.2 percent in August 2019 as compared to 7.8 percent in the previous month and 7.7 percent during corresponding month of last year.
6. Core NFNE inflation on month-on-month basis recorded at 0.5 percent in August 2019 as compared to 1.7 percent in the previous month. Core NFNE inflation was 0.2 percent during the corresponding month of last year.
7. WPI inflation on year-on-year basis recorded at 13.6 percent in August 2019 as compared to 13.5 percent in the previous month and 11.0 percent during the corresponding month of last year.

8. WPI inflation on month-on-month basis recorded at 0.9 percent in August 2019 as compared to 3.1 percent in the previous month. It was 0.8 percent in the corresponding month of last year.
9. SPI inflation on year-on-year basis recorded at 18.3 percent in August 2019 as compared to 14.8 percent in the previous month. It was 4.0 percent in the corresponding month of last year.
10. SPI inflation on month-on-month basis recorded at 2.9 percent in August 2019 as compared to 2.2 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 2019 are described below:

11. Core RSC inflation on year-on-year basis is recorded at 10.5 percent in August 2019 as compared to 10.3 percent in the previous month and 6.7 percent during the corresponding month of last year.
12. Core RSC inflation on month-on-month basis is recorded at 0.6 percent in August 2019 as compared to 2.7 percent in the previous month and 0.3 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**					
	100.00		37.48		62.52		53.52		80.00		67.69		100.00		100.00	
	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM
Aug-18	5.8	0.2	3.3	0.2	7.6	0.2	7.7	0.2	5.9	0.2	6.7	0.3	11.0	0.8	4.0	-0.2
Sep-18	5.1	-0.1	1.3	-0.7	7.7	0.3	8	0.4	5.8	0.1	7.0	0.3	9.2	-1.5	2.2	-0.2
Oct-18	6.8	2.3	2.7	1.9	9.6	2.6	8.2	1.1	6.7	0.8	8.7	2.4	13.1	4.2	4.5	3.0
Nov-18	6.5	0.1	1.8	-0.5	9.8	0.5	8.3	0.4	6.7	0.3	8.9	0.4	13.5	0.7	5.3	1.3
Dec-18	6.2	-0.4	0.9	-1.4	9.8	0.2	8.4	0.3	6.9	0.3	9.0	0.2	12.1	-0.9	5.5	-0.1
Jan-19	7.2	1.0	2.4	0.3	10.4	1.4	8.7	1.1	7.7	1.0	9.4	1.0	9.9	-0.2	6.7	0.4
Feb-19	8.2	0.6	5.0	1.4	10.3	0.1	8.8	0.2	7.7	0.2	9.4	0.2	11.0	0.9	10.0	2.2
Mar-19	9.4	1.4	8.4	2.9	10.1	0.5	8.5	0.5	7.9	0.4	9.2	0.4	12.6	1.7	12.0	1.6
Apr-19	8.8	1.3	8.6	1.7	9.0	1.0	7	1	7.2	0.9	8.0	0.9	13.8	2.3	12.4	1.0
May-19	9.1	0.8	8.7	1.1	9.4	0.6	7.2	0.4	7.5	0.4	8.1	0.4	14.0	1.4	13.1	1.2
Jun-19	8.9	0.4	8.2	0.4	9.3	0.4	7.2	0.3	7.3	0.4	8.4	0.6	12.7	0.3	12.9	1.4
Jul-19	10.3	2.3	9.2	1.5	11.1	2.8	7.8	1.7	8.0	1.7	10.3	2.7	13.5	3.1	14.8	2.2
Aug-19	11.6	1.4	11.9	2.6	11.5	0.6	8.2	0.5	8.5	0.6	10.5	0.6	13.6	0.9	18.3	2.9
* NFNE is Non-food non-energy ** Relatively Stable Component of CPI *** SPI for all income groups combined																

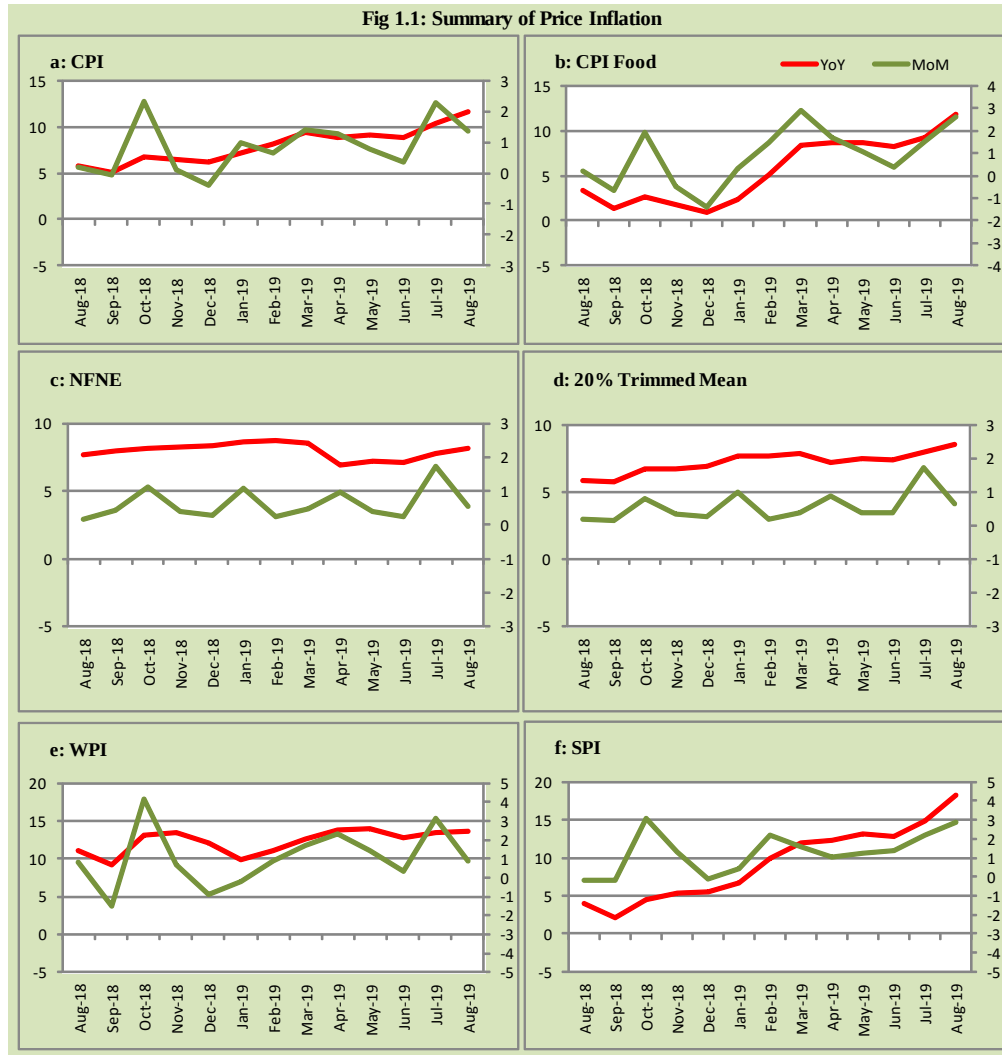
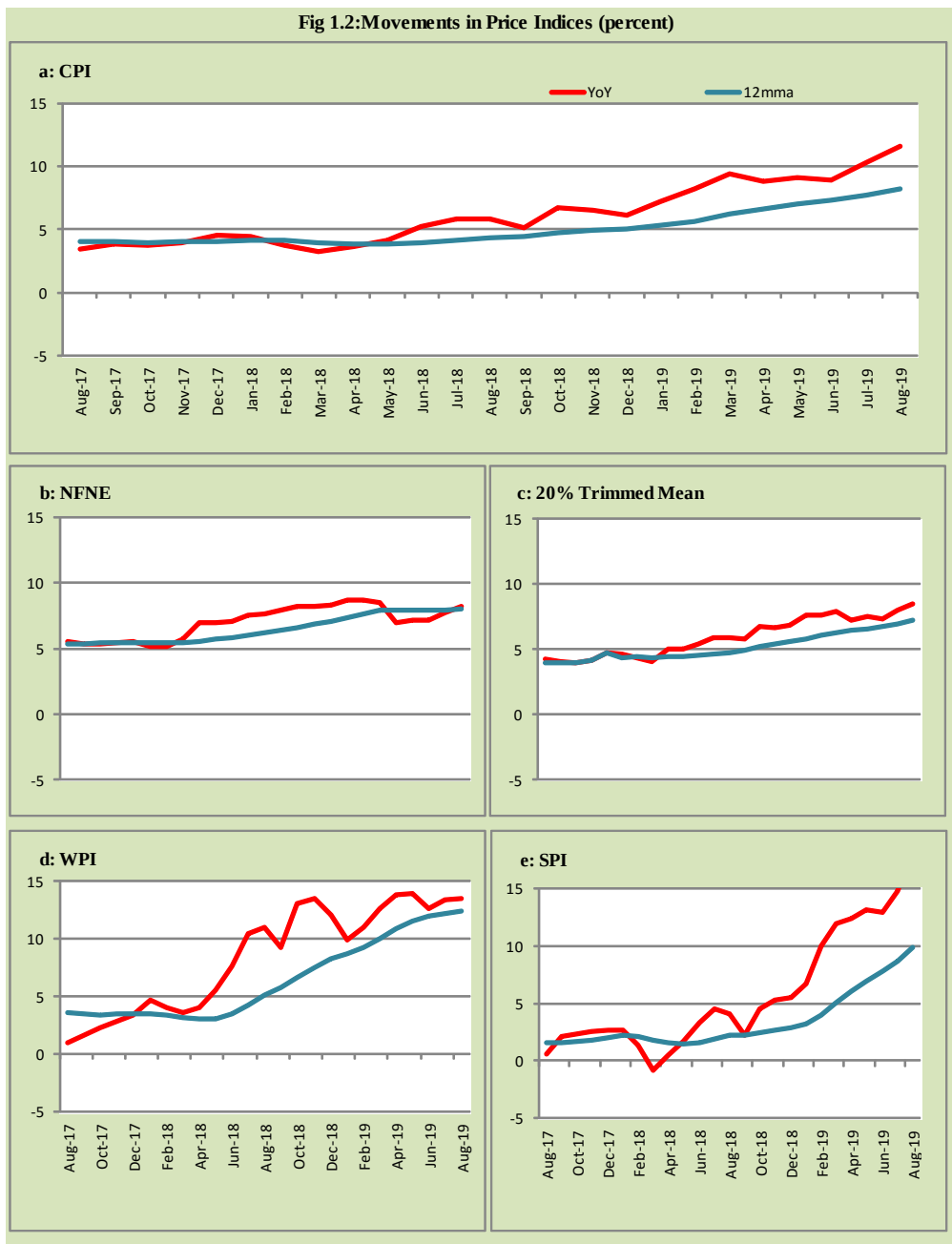
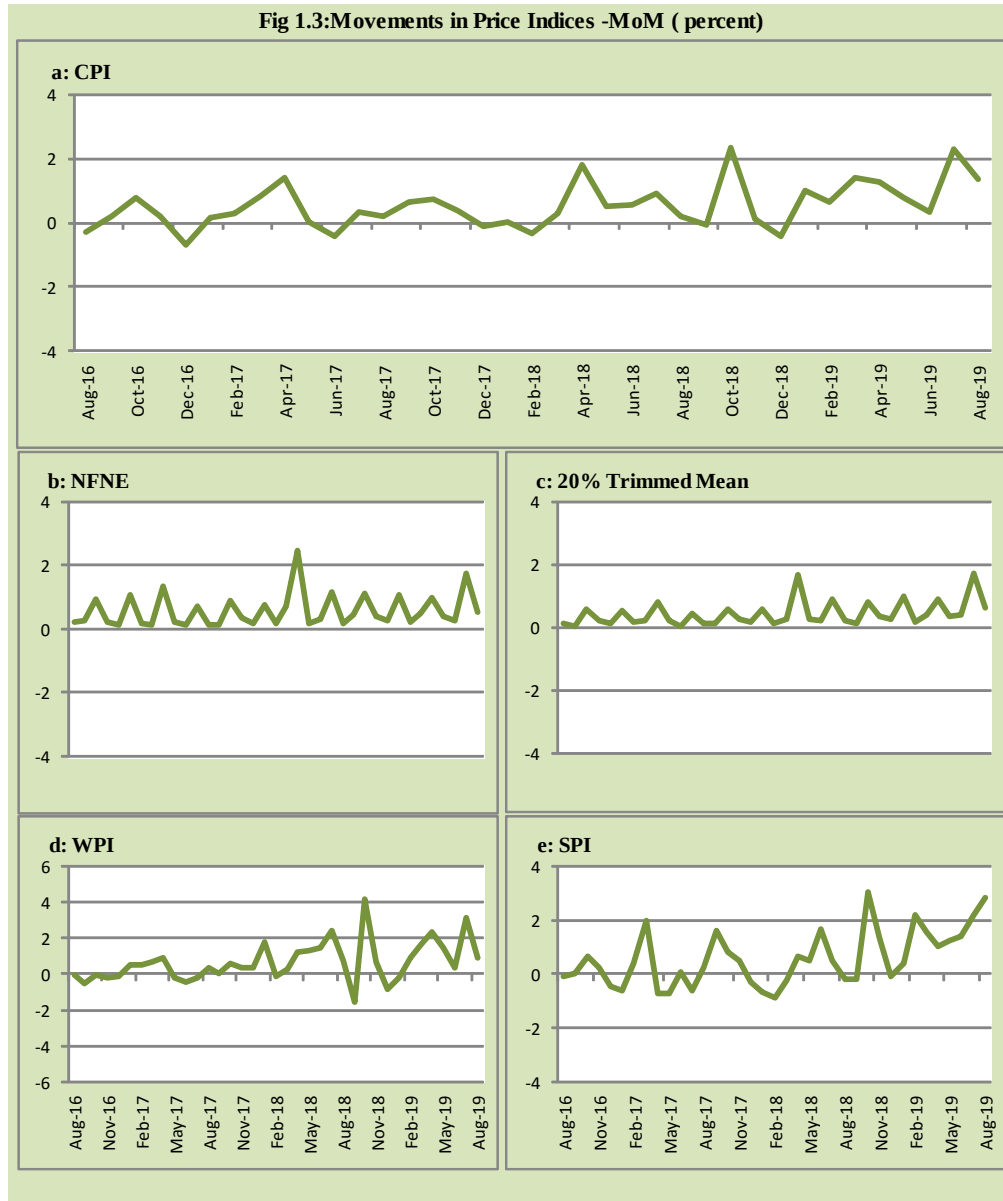
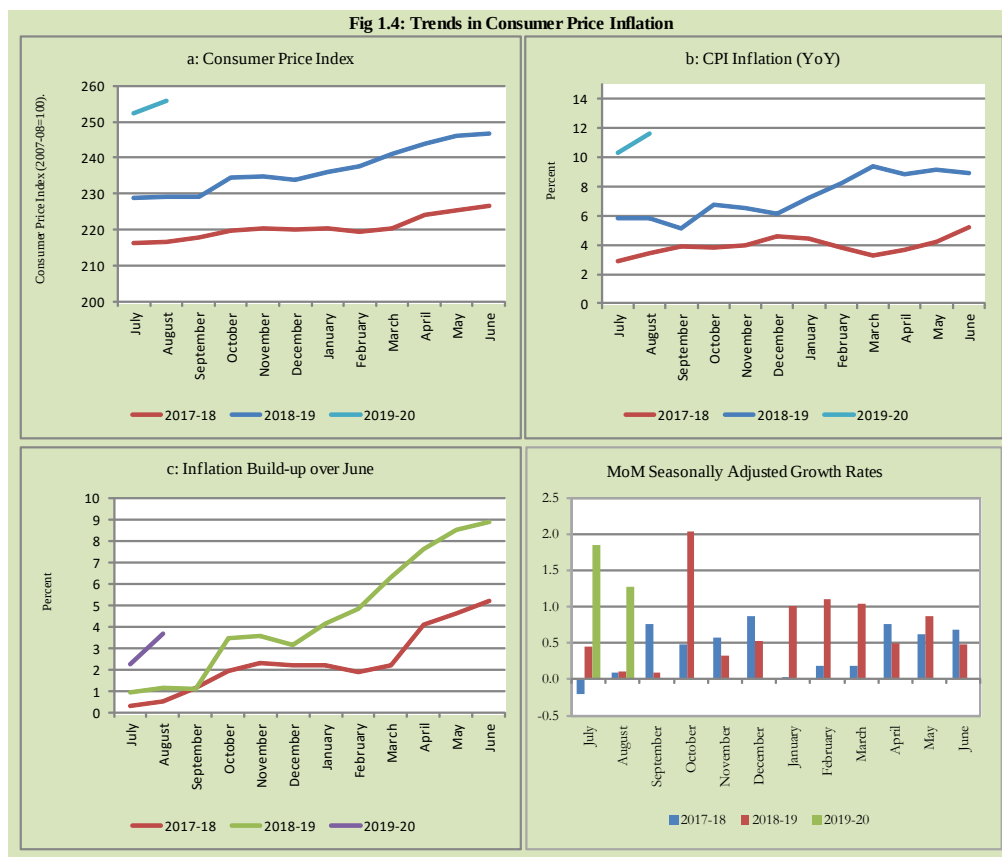


Fig 1.2: Movements in Price Indices (percent)







2. City wise Inflation

CPI Inflation on year-on-year basis in federal and provincial capitals of Pakistan showed mixed trend during August 2019. Among these five cities, the lowest inflation was observed in Lahore at 9.4 percent while the highest inflation was observed in Quetta at 13.7 percent (Table A6 of annexure-A).

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

	Aug-18		Jul-19		Aug-19	
	MoM	YoY	MoM	YoY	MoM	YoY
Overall CPI	0.2	5.8	2.3	10.3	1.4	11.6
Islamabad	0.2	5.0	2.2	9.6	1.6	11.2
Karachi	0.1	5.4	4.2	11.5	1.2	12.8
Lahore	-0.3	4.4	1.8	7.2	1.7	9.4
Peshawar	0.6	7.0	2.4	10.9	1.6	12.0
Quetta	0.3	7.9	2.1	12.5	1.3	13.7

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 in overall CPI General and non-food group during August 2019. The income group (Up to Rs. 8,000) observed lowest inflation in general CPI during the month of August 2019 and the income group (above Rs. 35,000) witnessed lower inflation as compared to other quintiles in food group during August 2019 (Table A7 of annexure-A).

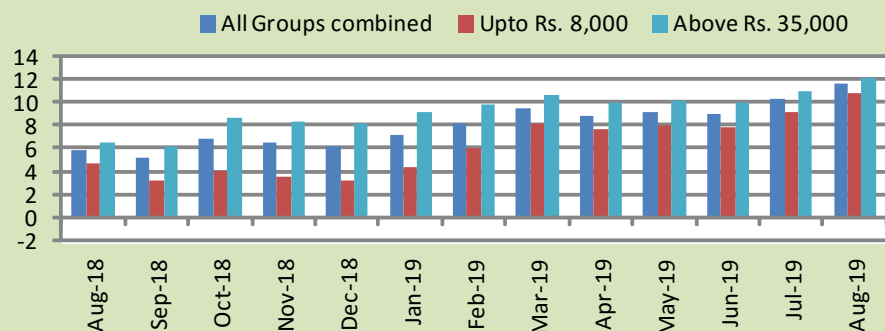
Table 3.1 Income Group- wise Inflation (YoY) (percent)

Income Groups	General			Food			Non-food		
	Aug-18	Jul-19	Aug-19	Aug-18	Jul-19	Aug-19	Aug-18	Jul-19	Aug-19
All Groups Combined	5.8	10.3	11.6	3.3	9.2	11.9	7.6	11.1	11.5
Up to Rs. 8,000	4.6	9.2	10.7	2.9	9.7	12.3	6.7	8.6	8.9
Rs. 8,001- 12,000	4.8	9.7	11.2	3.0	9.4	12.1	6.7	10.0	10.4
Rs. 12,001- 18,000	5.1	9.7	11.2	3.1	9.4	12.1	6.9	9.9	10.3
Rs. 18,001- 35,000	5.5	10.4	11.8	3.2	9.4	12.2	7.4	11.1	11.5
Above Rs. 35,000	6.6	11.0	12.1	3.7	8.9	11.4	8.0	12.0	12.4

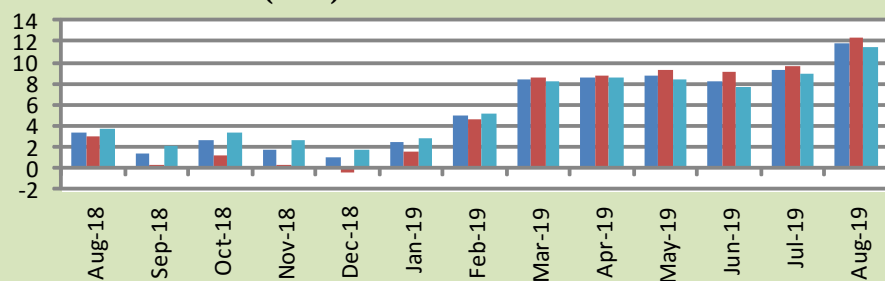
Note: Computed based on CPI indices of five Income Quintiles released by Pakistan Bureau of Statistics (PBS)

Fig 3.1: Income Group- wise Inflation

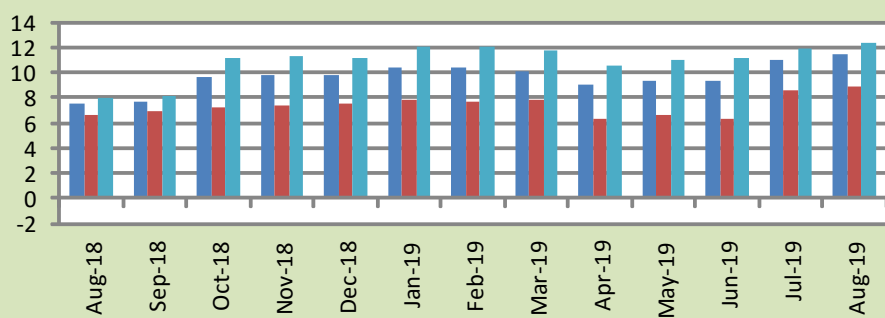
a: CPI Overall Inflation (YoY)



b: CPI Food Inflation (YoY)



c: CPI Non-Food Inflation (YoY)



4. Weighted Contribution

The weighted contribution of food group in the overall inflation increased to 40.54 percent during August 2019 from 35.52 percent in previous month. It was 23.30 percent during corresponding month of last year.

The weighted contribution of non-food group decreased to 59.46 percent in August 2019 from 64.48 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-18	23.30	9.26	27.58	17.14	10.05	12.67
Sep-18	10.81	10.75	31.29	19.01	13.36	14.80
Oct-18	16.06	8.22	35.92	15.95	7.92	15.94
Nov-18	11.22	9.54	37.56	17.74	7.23	16.70
Dec-18	6.27	10.43	39.55	17.35	7.89	18.50
Jan-19	13.26	8.36	43.58	12.43	6.55	15.81
Feb-19	24.38	7.05	38.18	9.82	5.86	14.72
Mar-19	35.31	6.48	33.22	8.45	3.21	13.33
Apr-19	38.58	5.09	31.02	9.88	3.13	12.30
May-19	38.04	6.04	29.60	11.06	2.95	12.30
Jun-19	36.81	5.91	30.28	10.40	3.01	13.58
Jul-19	35.52	6.02	33.37	9.05	3.24	12.80
Aug-19	40.54	6.15	29.53	8.44	2.94	12.40

5. Inflation Diffusion Index

Table 5.1 Inflation Diffusion Index - based on MoM change

	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19
General	47.7	45.9	62.4	52.7	53.1	51.3	43.6	58.3	53.2	55.3	47.7	68.2	63.1
Food & Non-Alcoholic Beverages	46.5	32.2	54.3	35.0	49.6	62.3	51.8	71.7	44.5	50.0	48.2	65.2	75.0
Alcoholic Beverages & Tobacco	0.0	33.3	100.0	66.7	0.0	66.7	66.7	50.0	50.0	16.7	33.3	66.7	100.0
Clothing & Footwear	45.8	67.8	61.0	79.7	81.4	61.0	42.4	62.7	61.0	74.6	44.1	67.8	62.7
Housing, Water, Elect, Gas & other Fuels	44.4	16.7	75.0	38.9	16.7	41.7	13.9	19.4	44.4	25.0	41.7	88.9	30.6
Furnishing & Household Equip. Maintenance etc	79.7	76.8	91.3	91.3	84.1	79.7	84.1	71.0	82.6	82.6	82.6	94.2	87.0
Health	51.3	48.7	69.2	53.8	53.8	48.7	42.1	47.4	61.5	69.2	51.3	64.1	61.5
Transport	39.5	25.6	41.9	39.5	48.8	20.9	9.3	48.8	34.9	46.5	23.3	74.4	41.9
Communication	16.7	8.3	41.7	41.7	0.0	8.3	8.3	16.7	8.3	8.3	8.3	8.3	16.7
Recreation & Culture	23.1	20.5	35.9	28.2	12.8	17.9	12.8	51.3	51.3	38.5	15.4	17.9	48.7
Education	0.0	68.8	31.3	0.0	25.0	-25.0	0.0	62.5	43.8	0.0	0.0	43.8	62.5
Restaurant & Hotels	100.0	50.0	66.7	66.7	100.0	66.7	66.7	100.0	83.3	66.7	83.3	100.0	66.7
Miscellaneous	60.0	77.1	82.9	71.4	74.3	74.3	71.4	60.0	48.6	77.1	82.9	85.7	65.7
NFNE	48.8	52.7	66.9	58.9	56.5	47.6	42.1	54.3	55.9	58.0	47.3	69.2	60.1

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-18		Jul-19		Aug-19	
			YoY	MoM	YoY	MoM	YoY	MoM
1	Wheat	10 Kg	4.29	0.24	10.78	4.19	10.70	0.17
2	Wheat Flour Bag	10 Kg	4.90	0.17	10.42	3.57	10.54	0.27
3	Rice Basmati Sup. Qlty.	Kg	12.29	0.92	7.65	2.75	6.88	0.20
4	Pulse Masoor (Washed)	Kg.	-11.04	0.00	11.70	2.80	12.81	0.99
5	Pulse Moong (Washed)	Kg.	-8.93	-0.14	47.63	5.41	48.42	0.40
6	Pulse Mash (Washed)	Kg.	-24.24	-0.10	22.27	4.50	23.81	1.16
7	Pulse Gram	Kg.	-6.71	0.20	12.30	1.31	13.41	1.20
8	Vegetable Ghee (Loose)	Kg.	4.22	0.51	12.64	3.70	16.81	4.23
9	Sugar Refined	Kg.	-6.91	0.92	30.72	1.09	34.29	3.67
10	Milk Fresh (Unboiled)	Ltr	4.00	0.44	5.35	1.46	5.78	0.85
11	Tapal Danedar Tea 200 Gm	Pkt	10.91	0.28	3.17	0.35	3.36	0.47
12	Beef With Bone Av.Qlty.	Kg	9.54	1.62	12.04	0.90	11.63	1.25
13	Mutton Av.Qlty.	Kg	12.24	1.04	11.85	0.97	11.09	0.36
14	Chicken Farm Broiler (Live)	Kg	-14.96	-20.11	-2.91	-8.26	53.88	26.62
15	Eggs Farm	Doz	1.23	-2.39	-11.45	5.06	-2.46	7.51
16	Potatoes	Kg	-18.11	6.85	21.07	16.84	22.08	7.73
17	Onion	Kg	4.00	25.95	58.83	-1.73	62.54	28.89
18	Tomatoes	Kg	62.42	47.59	-18.07	1.17	-18.91	46.07
19	Ginger	Kg	11.14	0.80	23.93	6.80	50.15	22.13
20	Garlic	Kg	-32.84	1.82	74.87	5.02	86.05	8.33

7. Global Commodity Prices

Table 7.1 Changes in Major Global Indices (percent)

Item/ Group	Aug-18		Jul-19		Aug-19	
	YoY	MoM	YoY	MoM	YoY	MoM
Food	0.2	-1.4	-3.6	-1.6	-4.5	-2.3
Metals	-3.2	-2.8	-8.3	1.6	-7.8	-2.2
Energy	38.4	-1.4	-18.4	2.5	-22.2	-6.1
Agricultural	-0.9	-1.8	-3.3	-1.2	-4.5	-3.0
Cotton	19.2	-1.7	-21.5	-2.7	-25.1	-6.3

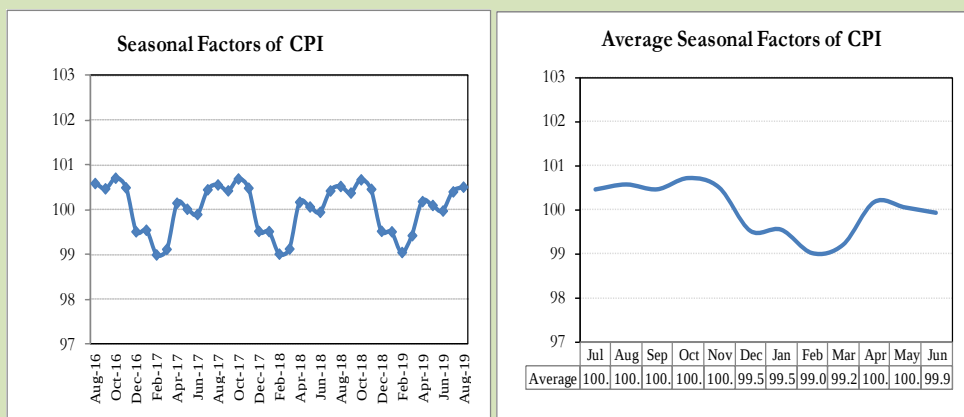
8. Seasonal Adjustment in CPI

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 2019 has been used for seasonal adjustment analysis. The seasonal analysis is carried out without taking trading-day or Islamic calendar month's effects.

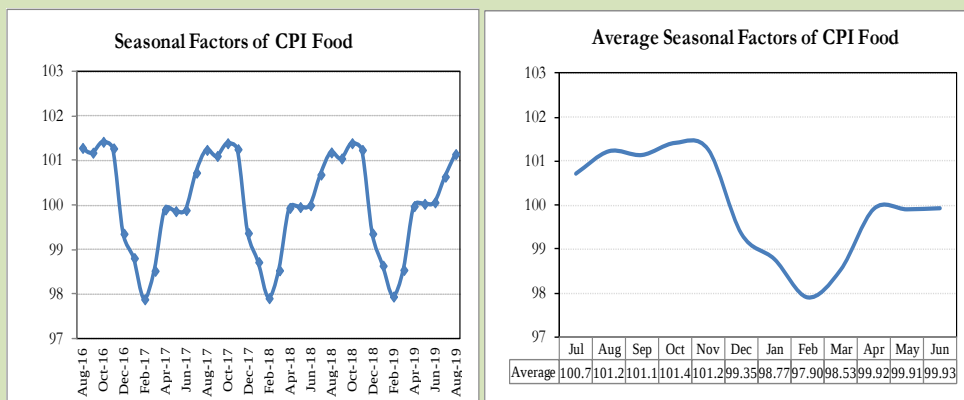
Figure 8.1 reveals that seasonality in CPI has been increasing over the period of last four years. Average seasonal factors reveal strong seasonality during the calendar year. There is an upward seasonality during the months from July to December and downward seasonality in the remaining months of the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

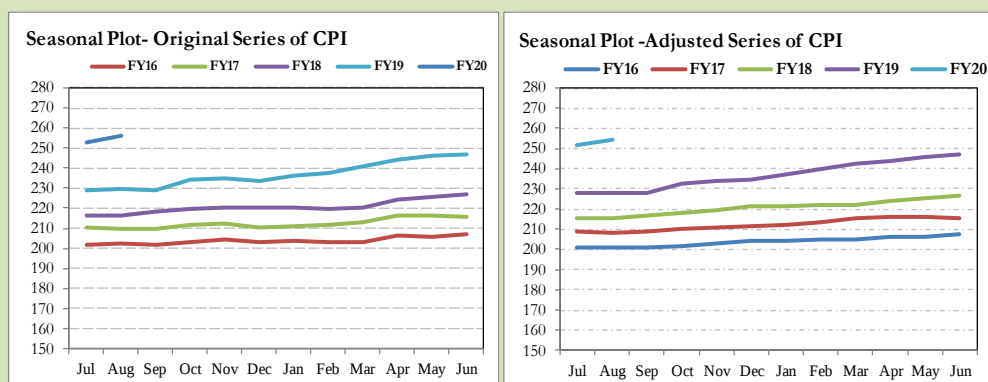
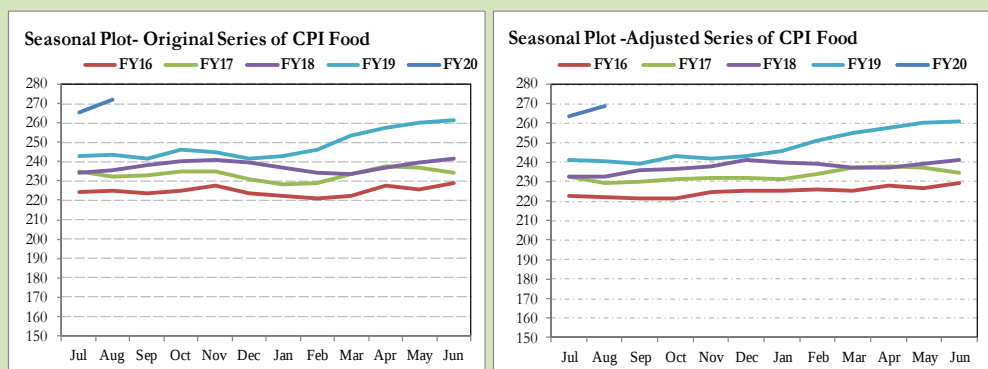


Fig. 8.4 Seasonal Plots of CPI (Food)



Seasonally adjusted CPI for August 2019 stood at 254.62 against 255.94 in original series showing a decrease of 1.32 on account of adjustment of upward seasonality in August 2019.

Seasonally adjusted CPI food group for August 2019 stood at 269.02 against 272.11 in original series showing decrease of 3.09 on account of adjustment of upward seasonality in August 2019.

Month-on-month change of seasonally adjusted CPI series stood at 1.27% reflecting an increase during August 2019 over previous month and an increase of 1.38% in original series.

Month-on-month change of seasonally adjusted CPI food group series stood at 2.11% reflecting an increase during August 2019 over previous month and an increase of 2.62% 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 2019 (corresponding to the seasonally adjusted month-on-month rate) is 16.38 percent.

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

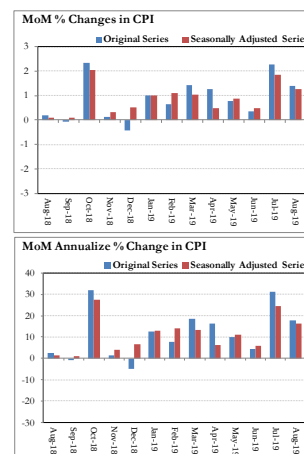
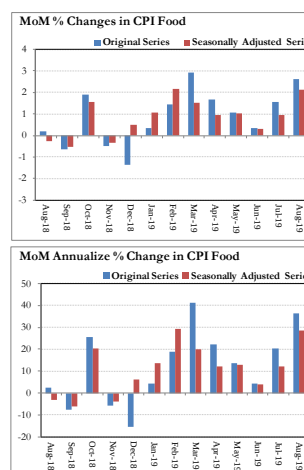


Fig. 8.6 Month-on-Month Percent Changes in CPI Food



Annexure A

Table A1: CPI Inflation by Groups (percent)							
	Weight	MoM change			YoY change		
		Aug-18	Jul-19	Aug-19	Aug-18	Jul-19	Aug-19
I. Food Group	37.5	0.2	1.5	2.6	3.3	9.2	11.9
Food & Non-Alcoholic Beverages	34.8	0.2	1.0	2.8	3.3	7.9	10.7
Alcoholic Beverages & Tobacco	1.4	-0.1	10.8	0.7	2.4	35.7	36.8
Restaurant & Hotels	1.2	0.6	1.4	1.0	6.0	7.9	8.3
II. Non-Food Group	62.5	0.2	2.8	0.6	7.6	11.1	11.5
Clothing & Footwear	7.6	0.2	1.4	1.2	6.5	7.4	8.5
Housing, Water, Elect, Gas & other Fuels	29.4	0.0	4.0	0.0	6.0	12.7	12.7
Furnishing & Household Equip.	4.2	0.4	1.1	0.9	6.2	10.2	10.7
Health	2.2	0.2	0.5	0.2	5.7	9.0	8.9
Transport	7.2	1.0	3.9	1.5	17.3	14.7	15.3
Communication	3.2	0.1	0.0	0.3	0.6	8.8	9.0
Recreation & Culture	2.0	0.6	0.7	1.0	6.9	7.6	8.2
Education	3.9	0.0	1.4	0.1	12.9	6.9	7.0
Miscellaneous	2.8	-0.4	2.3	2.2	6.3	11.6	14.4
Headline	100.0	0.2	2.3	1.4	5.8	10.3	11.6

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-19	Aug-18	Aug-19	Aug-18	Aug-19	Aug-18	Aug-19	Aug-18	Aug-19	Aug-19
I. Food Group	11.9	128	128	24	18	46	19	30	46	28	45
Food & Non-Alcoholic Beverages	10.7	116	116	23	17	40	18	29	42	24	39
Alcoholic Beverages & Tobacco	36.8	6	6	1	1	3	0	0	0	2	5
Restaurant & Hotels	8.3	6	6	0	0	3	1	1	4	2	1
II. Non-Food Group	11.5	348	348	40	31	112	49	129	128	67	140
Clothing & Footwear	8.5	59	59	3	6	19	4	30	36	7	13
Housing, Water, Elect, Gas & other Fuels	12.7	36	36	12	3	5	5	12	13	7	15
Furnishing & Household Equip. Maintenance etc	10.7	69	69	0	0	21	6	39	26	9	37
Health	8.9	39	39	5	2	23	11	6	11	5	15
Transport	15.3	43	43	9	5	11	2	7	11	16	25
Communication	9.0	12	12	5	4	5	3	0	1	2	4
Recreation & Culture	8.2	39	39	4	7	14	11	12	8	9	13
Education	7.0	16	16	0	3	3	3	4	4	9	6
Miscellaneous	14.4	35	35	2	1	11	4	19	18	3	12
Overall	11.6	476	476	64	49	158	68	159	174	95	185
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 2019					
Top 15 Contributors			YoY Change		Weighted Contribution
Items/ Contributors	Weights	Aug-18	Aug-19		
Ranked by Weighted Contribution					
1	Gas	1.58	0.00	142.57	13.31
2	House Rent	21.81	7.58	6.20	10.45
3	Cigarettes	1.39	0.35	38.21	6.14
4	Motor Fuel	3.03	27.95	24.29	5.09
5	Electricity	4.40	0.00	11.33	4.45
6	Chicken	1.36	-14.97	53.88	4.20
7	Milk Fresh	6.68	3.99	5.66	4.07
8	Meat	2.43	10.48	11.44	3.27
9	Onion	0.53	4.00	62.55	3.17
10	Wheat Flour	4.16	4.45	9.25	3.06
11	Education	3.94	12.93	7.05	2.94
12	Sugar	1.04	-6.91	34.28	2.68
13	Personal Equipments	0.84	7.84	25.78	2.67
14	Cotton Cloth	1.73	6.58	12.21	1.96
15	Fresh Vegetables	1.68	5.87	10.26	1.81
Total		56.62			69.27
Bottom 15 Contributors					
1	Tomatoes	0.44	62.43	-18.91	-0.83
2	Eggs	0.46	1.23	-2.47	-0.08
3	Gram Whole	0.16	-6.99	-1.88	-0.03
4	Betel Leaves & Nuts	0.02	152.19	-4.45	-0.02
5	Kerosene Oil	0.01	38.54	-11.81	-0.01
6	Medical Equipments	0.01	4.03	9.71	0.01
7	Beans	0.03	0.57	12.16	0.03
8	Blades	0.03	3.71	12.39	0.03
9	Marriage Hall Charges	0.08	6.99	5.17	0.04
10	Mustard Oil	0.10	2.60	7.03	0.04
11	Wheat Product	0.10	0.32	6.08	0.05
12	Gur	0.02	-2.68	33.70	0.07
13	Cereals	0.16	3.46	5.10	0.08
14	Recreation & Culture	0.86	6.06	1.90	0.08
15	Fire Wood Whole	0.23	2.45	4.09	0.10
Total		2.69			-0.44

Table A3.1: Top and Bottom 15 Contributors to CPI Inflation (MoM) in August 2019

<u>Top 15 Contributors</u>		<u>MoM Change</u>		Weighted Contribution	
Items/ Contributors	Weights	Jul-19	Aug-19		
Ranked by Weighted Contribution					
1	Chicken	1.36	-8.26	26.62	19.32
2	Onion	0.53	-1.73	28.89	14.15
3	Fresh Vegetables	1.68	3.56	7.08	9.87
4	Tomatoes	0.44	1.17	46.07	8.55
5	Motor Fuel	3.03	3.20	2.76	5.36
6	Milk Fresh	6.68	1.41	0.86	4.97
7	Personal Equipments	0.84	4.69	4.62	4.40
8	Vegetable Ghee	2.07	2.49	3.86	3.73
9	Footware	1.55	0.22	4.48	3.63
10	Sugar	1.04	1.09	3.67	2.85
11	Cooking Oil	1.75	0.85	3.69	2.85
12	Potatoes	0.47	16.84	7.73	2.58
13	Meat	2.43	0.93	0.94	2.27
14	Wheat Flour	4.16	3.58	0.75	2.07
15	Eggs	0.46	5.06	7.51	1.78
Total		28.51			88.37
<u>Bottom 15 Contributors</u>					
1	Fresh Fruits	1.86	-7.95	-4.89	-7.51
2	Kerosene Oil	0.01	0.29	-19.17	-0.09
3	Dry Fruits	0.25	0.09	-0.32	-0.07
4	Woolen Readymade Garments	0.40	-0.02	0.00	0.00
5	News Papers	0.19	0.00	0.00	0.00
6	Marriage Hall Charges	0.08	0.00	0.00	0.00
7	Postal Services	0.07	0.00	0.00	0.00
8	Water Supply	0.50	0.21	0.00	0.00
9	Doctor (Mbbs) Clinic Fee	0.59	0.27	0.00	0.00
10	Household Servent	1.04	0.26	0.00	0.00
11	Electricity	4.40	2.63	0.00	0.00
12	House Rent	21.81	1.86	0.00	0.00
13	Gas	1.58	30.90	0.00	0.00
14	Medical Equipments	0.01	0.89	0.59	0.00
15	Blades	0.03	0.52	0.63	0.01
Total		32.82			-7.66

Table A3.2: Top Fifteen Contributors to CPI Inflation (YoY) in August 2019					
Items/ Contributors		Weights	YoY Change		Weighted Contribution
			Aug-18	Aug-19	
A. Ranked by Percentage Change					
1	Gas	1.58	0.00	142.57	13.31
2	Onion	0.53	4.00	62.55	3.17
3	Chicken	1.36	-14.97	53.88	4.20
4	Pulse Moong	0.23	-8.93	48.42	0.92
5	Cigarettes	1.39	0.35	38.21	6.14
6	Sugar	1.04	-6.91	34.28	2.68
7	Gur	0.02	-2.68	33.70	0.07
8	Postal Services	0.07	8.79	27.61	0.19
9	Personal Equipments	0.84	7.84	25.78	2.67
10	Motor Fuel	3.03	27.95	24.29	5.09
11	Pulse Mash (Washed)	0.21	-24.24	23.81	0.39
12	Potatoes	0.47	-18.11	22.08	0.85
13	News Papers	0.19	10.96	19.63	0.29
14	Motor Vehicle	0.66	11.51	18.97	0.93
15	Honey	0.04	5.70	18.28	0.11
Total		11.68			41.00
B. Ranked by Weights					
1	House Rent	21.81	7.58	6.20	10.45
2	Milk Fresh	6.68	3.99	5.66	4.07
3	Electricity	4.40	0.00	11.33	4.45
4	Wheat Flour	4.16	4.45	9.25	3.06
5	Education	3.94	12.93	7.05	2.94
6	Communication & Apparatus	3.15	0.23	8.16	1.26
7	Motor Fuel	3.03	27.95	24.29	5.09
8	Transport Services	2.70	14.16	7.58	1.70
9	Meat	2.43	10.48	11.44	3.27
10	Vegetable Ghee	2.07	3.03	14.15	1.62
11	Fresh Fruits	1.86	-3.11	5.16	0.94
12	Cooking Oil	1.75	2.34	12.25	1.14
13	Cotton Cloth	1.73	6.58	12.21	1.96
14	Fresh Vegetables	1.68	5.87	10.26	1.81
15	Rice	1.58	8.63	6.45	0.76
Total		63.00			44.51
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 11.6 percent in August 2019.					

Table A3.3: Top Ten Contributors to CPI Food Inflation (YoY) in August 2019

Table 1: Top 10 Contributors to CPI Food Inflation (2017, in August 2019)					
Items/ Contributors		Weights	YoY Change		Weighted Contribution
			Aug-18	Aug-19	
A. Ranked by Weighted Contribution					
1	Cigarettes	1.39	0.35	38.21	6.14
2	Chicken	1.36	-14.97	53.88	4.20
3	Milk Fresh	6.68	3.99	5.66	4.07
4	Meat	2.43	10.48	11.44	3.27
5	Onion	0.53	4.00	62.55	3.17
6	Wheat Flour	4.16	4.45	9.25	3.06
7	Sugar	1.04	-6.91	34.28	2.68
8	Fresh Vegetables	1.68	5.87	10.26	1.81
9	Vegetable Ghee	2.07	3.03	14.15	1.62
10	Cooking Oil	1.75	2.34	12.25	1.14
Total		23.11			31.17
B. Ranked by Percentage Change					
1	Onion	0.53	4.00	62.55	3.17
2	Chicken	1.36	-14.97	53.88	4.20
3	Pulse Moong	0.23	-8.93	48.42	0.92
4	Cigarettes	1.39	0.35	38.21	6.14
5	Sugar	1.04	-6.91	34.28	2.68
6	Gur	0.02	-2.68	33.70	0.07
7	Pulse Mash (Washed)	0.21	-24.24	23.81	0.39
8	Potatoes	0.47	-18.11	22.08	0.85
9	Honey	0.04	5.70	18.28	0.11
10	Vegetable Ghee	2.07	3.03	14.15	1.62
Total		7.38			20.14
C. Ranked by Weights					
1	Milk Fresh	6.68	3.99	5.66	4.07
2	Wheat Flour	4.16	4.45	9.25	3.06
3	Meat	2.43	10.48	11.44	3.27
4	Vegetable Ghee	2.07	3.03	14.15	1.62
5	Fresh Fruits	1.86	-3.11	5.16	0.94
6	Cooking Oil	1.75	2.34	12.25	1.14
7	Fresh Vegetables	1.68	5.87	10.26	1.81
8	Rice	1.58	8.63	6.45	0.76
9	Cigarettes	1.39	0.35	38.21	6.14
10	Chicken	1.36	-14.97	53.88	4.20
Total		24.98			27.01
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 11.9 percent in August 2019.					

Table A3.4: Top Ten Contributors to CPI Non-food Inflation (YoY) in August 2019					
Items/ Contributors		Weights	YoY Change		Weighted Contribution
			Aug-18	Aug-19	
A. Ranked by Weighted Contribution					
1	Gas	1.58	0.00	142.57	13.31
2	House Rent	21.81	7.58	6.20	10.45
3	Motor Fuel	3.03	27.95	24.29	5.09
4	Electricity	4.40	0.00	11.33	4.45
5	Education	3.94	12.93	7.05	2.94
6	Personal Equipments	0.84	7.84	25.78	2.67
7	Cotton Cloth	1.73	6.58	12.21	1.96
8	Transport Services	2.70	14.16	7.58	1.70
9	Communication & Apparatus	3.15	0.23	8.16	1.26
10	Household Servent	1.04	6.55	10.45	1.11
Total		44.23			44.93
B. Ranked by Percentage Change					
1	Gas	1.58	0.00	142.57	13.31
2	Postal Services	0.07	8.79	27.61	0.19
3	Personal Equipments	0.84	7.84	25.78	2.67
4	Motor Fuel	3.03	27.95	24.29	5.09
5	News Papers	0.19	10.96	19.63	0.29
6	Motor Vehicle	0.66	11.51	18.97	0.93
7	Motor Vehicle Tax	0.11	0.00	17.56	0.15
8	Plastic Products	0.25	7.83	14.34	0.31
9	Construction Input Items	0.56	10.00	13.90	0.82
10	Washing Soap & Detergent	0.79	4.18	13.42	0.96
Total		8.09			24.72
C. Ranked by Weights					
1	House Rent	21.81	7.58	6.20	10.45
2	Electricity	4.40	0.00	11.33	4.45
3	Education	3.94	12.93	7.05	2.94
4	Communication & Apparatus	3.15	0.23	8.16	1.26
5	Motor Fuel	3.03	27.95	24.29	5.09
6	Transport Services	2.70	14.16	7.58	1.70
7	Cotton Cloth	1.73	6.58	12.21	1.96
8	Gas	1.58	0.00	142.57	13.31
9	Footware	1.55	7.48	5.53	0.58
10	Personal Care	1.49	4.85	6.94	0.94
Total		45.39			42.67
Note: Weighted contribution is estimated by multiplying the weights by the price change of an item; this is then reported as a share in YoY change in CPI Non-food, which is 11.5 percent in August 2019.					

Table A4: Distribution of Price Changes (YoY) - Selected CPI Items: August 2019

Groups	Decrease or no change	Subdued increase (Greater than 0% but less than 5%)	Moderate increase (5% but less than 10%)	Double digit increase (10% or more)
Food & Non-Alcoholic Beverages	Tomatoes, Pomegranate (Annar), Lady Finger, Aloo Bukhara, Gram Whole Yellow Av.Qlty, Tinda	Samosa (Vegetable), Cold Drink (Standard Size), Cardamom Large Loose Av.Qlty	Butter Local Packed, Saunf, Ice Cream Walls, Lactogen 400 Grams, Wheat Flour Avg. Qlty	Garlic, Onion, Cardamom Small Av.Qlty, Arvi, Chicken Farm Broiler (Live), Ginger, Pulse Moong (Washed), Sugar Refined, Gur Av.Qlty, Cinamon Loose Av. Qlty, Pulse Mash (Washed)
Alcoholic Beverages & Tobacco	Betel Nuts			Cigarettes Capstan 20,S, Cigarettes Morven Gold 20,S, Cigarettes K-20,S, Cigarettes Gold Leaf 20,S, Betel Leaves
Clothing & Footwear	Gents Shoe, Art 1109 Servis, Gents Sandal Bata, Ladies Spoung Chappal Bata, Ladies Sandal Bata, Gents Spoung Chappal Bata, Sports Shoes	School Uni. Kameez,Shal.Girls, Tailoring Shirt, Shoe Repair Half Sole, Tailoring Coat-Pant Suit	Shoe Polish Charges Avg, Pullover Gents Oxford/Bon, Dopatta Georgette Av.Qlty, Vest For Men Av.Qlty., Pullover Ladies Oxford/Bon	Child Shoe Power Lite Bata, Gents Shoes Paul Bata, Long Cloth 57" Gul Ahmed/Al Karam, Heavy Wt Suiting Law.Pur Av. Qlty, Tropical Suiting Law.Pur, Shirting Av.Qlty., Underwear Av.Qlty Medium Size, Dopatta Cotton Av. Qlty, Pant Cloth Wash & Wear Av.Qlty
Housing, Water, Elect, Gas & other Fuels	Kerosene Oil, Cement (Local), Elect.Charges Upto 50 Units	Firewood Whole, Water Charges Per House, Cement Blocks (6"X8"X12"), Elect.Charges 01 - 100 Units, Elect.Charges 101 - 300 Units	Plumber Wage Rate, Mason (Raj) Wage Rate, Timber Shesham Log, Bajree, Carpanter Wage Rate, Electrician Wage Rate(P/Day), House Rent For Q-V	Gas Chrg Over 200 - 300 Mmbtu, Gas Chrg Over 100 - 200 Mmbtu, Gas Chrg All Over 500 Mmbtu, Gas Chrg Overall/ Combined, Gas Chrg Over 300 - 500 Mmbtu, Gas Chrg Up To 100 Cub Mmbtu, Synthetic Enamel Ici, Elect.Charges Above 1000 Units, Iron Bar (M.S. Bar) 1/2"
Furnishing & Household Equip. Maintenance etc		D-Freezer Waves 8 Cft., Farshi Dari 12'X9' Av.Qlty, Carpet Plain Av. Qlty, Electric Blub Energy Saver 14 Watt, Washing Machine (Singer)	Gizer Large Size 30 Gallon, Almirah (Steel), Refg, Dawlence 10 Cft., S.Steel Plate Avg. Qlty, Blanket (90" X 54"), Electric Juicer	Tube Light Philips 40 Watt, Harpic, Tea Set Pak. China Wear 21 Pcs, Chair Shesham Wood, Non Stick Cooking Pan, Frying Pan Steel Avg. Qlty, Boot Polish Cherry/Kiwi 50 Ml, Washing Soap 250 Gm, Washing Powder 1000 Grm (Express)
Health	Hydryllin Syrup 120 Ml., Vicks Vaporub/ Balm	Gripe-Water Woodward's, Ventolin Tab. 2Mg., Sugar Test (Random/Fasting), Saniplast (1 Putty), O.R.S.	Panadol Tab. Extra/Plain, Urine Test (Dr) Charges, Blood Test (Cp) Charges, Ecg Charges, Entox Tab.	Betnovate-N Ointment 5 Gm, Dettol (Medium), Calpol Syrup 60 Ml., Sancos Syrup (50 Ml), Flagyl Tab. 200 Mg., Trisil Tab., Phenergan Syrup 120 Ml., Brufen Tabs 200-Mg.
Transport	Air Fare Economy Class., Gas Cylinder S.Size (L.P.G), Motor Cycle Service Charges Plateform Ticket, Motorcycle Yamaha 100 Cc, Full Tonga Charges	Motor Cycle Hero 70 Cc, Motor Cycle Service Charges	Car Suzuki 800 Cc (W/O. Ac), Train Fare 1st Slp.101-500, Bus Fare Outside City (A/C), Cycle Overhauling Charges, Taxi 4 Seater Fare	Car Honda Civic 1500 Cc, Cng, Train Fare A/C Slp > 500K, Train Fare A/C Slp. 1-100, Train Fare A/C Slp.101-500, Train Fare Eco. 1-100 Km., Petrol Super, Car Toyota 1300 Cc, Car Suzuki 1000 Cc, Train Fare Eco. > 500 Km.
Communication	Postal Envelope For Saudi Arabia, U.M.S. Reg Charges Min., Mobile Cell Charges	Telephone Set Av. Qlty, Fax Charges (Local), Internet Charges	Mobile Set Nokia/Sony/Ericsson Av.Qlty	Postal Envelope Domestic, Postal Registration Charges, Telephone Charges Local Call, Telephone Charges Outside City
Recreation & Culture	Weekly "Mag", V.C.P. Panasonic/Lg/National, Tv Licence Fee Domestic, Video Cassette Blank. Tdk/Sony, T.V. 20" Colored Sony	Urdu Book 1st Year/ Inter, English Book Ba/B.Sc, Eng. Book 1st.Yr Complete Set, Cinema A/C High Class, Cable Charges, Video Game Sega 16 Byte	Maths Book Calss V (T.B.Board), Pakistan Studies Book Ba/B.Sc, Urdu Book Class V (T.B.Board), English Book Class Ix Or X, Personnel Computer (Branded)	Daily "Nawa-E-Waqt", Daily "Jang", Photostate Paper 70 Gm, Weekly "Akhbar-E-Jahan", Pen Ink Dollor 57 Ml Bottle, Ball Pen (Local), Daily "Dawn", Pencil Goldfish/Deer, Urdu Book Ba/B.Sc, Exercise Book Lined 80/10, Fountain Pen Hero/Wings/China
Education	Coaching Fee For Class Ix/ X, Coaching Charges For Class Xi/ Xii Commerce Group	Pvt School Fee Eng.Med (Class-Vi), Govt. College Fee 1st. Year, Govt. College Fee 4Th. Year	Pvt School Fee Eng.Med (Class-X), Pvt School Fee Eng.Med (Class-I), Pvt School Fee Eng.Med (Class-V)	Mba Tuition Fee, Govt. Med. College Fee Mbbs 1st Year, Pvt Eng.Colege Fee (1st Year), Govt. University Fee Msc/ Ma, Pvt Med.College Fee Mbbs(1st Year), Govt. Engg. Coll. Fee 1st Year
Restaurant & Hotels		Chicken Biryani Full/Double	Tea Prepared (Ordinary), Cooked Beef (Av. Hotel), Cooked Mutton (Av. Hotel)	Cooked Dal (Av. Hotel)
Miscellaneous	Toothpaste Macleans 70 Gms	Toilet Soap Lifebouy 140 Gms, Hair Colour (Kala Kola), Shampoo Sunsilk/Pantene 100 Ml	Hair Colour Bigen, Hair Oil Amla/Chambeli, Wall Clock Quartz Av.Qlty, Artificial Jewellery Set	Gold Tezabi 24 Ct, Silver Tezabi 24 Ct, Toothpowder Dentonic 90 Gms, Blade Treet Ordinary (10), Perfume Med.Size Medora/Broche

Table A5: City- wise CPI Inflation by Income Groups, August 2019

	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	2.8	11.7	4.9	14.1	0.4	9.1	2.5	11.4	4.9	13.8	0.3	9.3
2 Islamabad	1.9	11.1	3.5	13.1	0.1	8.9	2.0	11.0	3.4	12.7	0.5	9.4
3 Lahore	2.2	9.7	4.1	11.6	-0.3	7.2	2.1	9.6	4.1	11.6	-0.1	7.3
4 Gujranwala	1.8	11.0	3.3	16.5	0.1	4.8	1.9	11.4	3.5	16.7	0.3	6.1
5 Sialkot	2.1	11.9	3.7	13.8	0.2	9.7	2.0	12.0	3.7	13.7	0.2	10.2
6 Faisalabad	2.3	10.8	4.3	12.6	0.1	8.7	2.1	10.6	4.0	12.6	0.2	8.7
7 Multan	1.5	11.6	2.3	13.8	0.4	9.0	1.3	11.4	2.1	13.5	0.5	9.3
8 Sargodha	3.5	11.9	6.0	14.2	0.9	9.4	3.3	11.9	6.0	14.2	0.8	9.7
9 Bahawalpur	2.5	9.8	4.8	12.2	0.2	7.3	2.4	9.5	4.8	12.0	0.3	7.2
10 Karachi	1.8	11.9	3.1	12.7	0.1	10.8	1.6	12.3	2.9	12.4	0.1	12.2
11 Hyderabad	1.9	14.1	3.0	13.0	0.4	15.6	1.7	14.3	2.8	12.7	0.4	16.2
12 Sukkur	0.8	12.5	1.0	15.0	0.5	9.6	0.7	12.1	0.9	14.8	0.5	9.4
13 Larkana	0.7	10.3	1.0	12.4	0.3	8.1	0.8	10.2	1.2	12.5	0.4	8.1
14 Peshawar	1.9	11.5	3.2	13.2	0.6	9.7	1.8	11.5	3.0	13.2	0.6	9.9
15 Bannu	1.8	9.2	3.2	10.6	0.3	7.7	1.5	9.3	2.8	10.2	0.3	8.5
16 Quetta	1.4	12.9	2.3	13.5	0.4	12.1	1.3	12.8	2.1	13.2	0.5	12.5
17 Khuzdar	0.5	6.3	0.6	7.7	0.5	4.8	0.7	6.7	0.6	8.4	0.8	5.0
	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	2.6	11.8	4.8	13.3	0.7	10.5	2.5	11.5	4.8	13.0	0.8	10.4
2 Islamabad	2.1	11.1	3.5	12.5	0.9	9.9	2.0	10.8	3.6	12.6	0.8	9.5
3 Lahore	2.1	9.8	3.9	11.4	0.3	8.1	1.9	9.4	3.7	11.3	0.2	7.7
4 Gujranwala	2.0	11.8	3.5	16.5	0.6	7.5	2.0	11.7	3.6	16.5	0.6	7.9
5 Sialkot	2.2	12.3	3.8	13.5	0.6	11.1	2.0	12.1	3.7	13.7	0.5	10.8
6 Faisalabad	1.9	10.8	3.6	12.3	0.3	9.5	1.6	10.6	3.3	12.7	0.3	8.9
7 Multan	1.4	11.6	2.1	13.7	0.7	9.7	1.5	11.6	2.4	14.1	0.7	9.6
8 Sargodha	3.1	11.6	5.7	13.7	1.0	9.9	2.8	11.3	5.6	13.9	0.8	9.4
9 Bahawalpur	2.5	10.3	4.9	12.4	0.5	8.6	2.2	9.5	5.1	12.7	0.2	7.3
10 Karachi	1.6	13.2	2.8	12.5	0.3	13.9	1.4	13.3	2.8	12.8	0.2	13.8
11 Hyderabad	1.6	14.8	2.6	12.7	0.6	17.1	1.4	14.9	2.4	12.7	0.6	16.9
12 Sukkur	0.7	11.9	0.8	14.8	0.7	9.3	0.7	11.1	0.5	14.0	0.8	8.8
13 Larkana	0.8	10.7	1.3	12.8	0.4	8.9	0.8	10.0	1.3	12.0	0.4	8.6
14 Peshawar	1.7	11.9	3.2	13.2	0.5	10.9	1.7	11.7	3.5	13.2	0.3	10.5
15 Bannu	1.5	9.2	2.9	10.1	0.3	8.5	1.2	9.3	2.4	10.3	0.2	8.5
16 Quetta	1.3	14.1	2.0	13.7	0.6	14.4	1.3	13.9	2.2	13.8	0.6	13.9
17 Khuzdar	0.6	6.0	0.4	7.1	0.9	5.0	0.7	6.2	0.3	6.5	1.0	5.9
	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	1.8	11.1	4.4	11.4	0.7	11.0	2.1	11.1	4.6	12.2	0.5	10.4
2 Islamabad	1.5	11.4	2.8	11.4	0.9	11.4	1.6	11.2	3.0	11.6	0.6	10.9
3 Lahore	1.4	9.4	3.5	9.7	0.3	9.3	1.7	9.4	3.7	10.7	0.2	8.4
4 Gujranwala	1.7	11.3	3.4	16.2	0.8	9.0	1.9	11.5	3.5	16.5	0.7	8.1
5 Sialkot	1.8	12.2	3.8	13.7	0.9	11.4	1.9	12.0	3.8	13.7	0.7	10.9
6 Faisalabad	1.1	10.2	2.5	11.1	0.4	9.8	1.6	10.5	3.4	12.3	0.4	9.4
7 Multan	1.2	10.8	2.1	13.5	0.7	9.6	1.3	11.2	2.2	13.7	0.7	9.5
8 Sargodha	2.1	11.2	4.9	12.5	1.0	10.7	2.8	11.5	5.5	13.6	1.2	10.2
9 Bahawalpur	1.5	8.6	4.8	10.8	0.2	7.7	2.0	9.3	4.8	12.0	0.4	7.8
10 Karachi	1.0	12.8	2.4	12.0	0.3	13.3	1.2	12.8	2.6	12.3	0.2	13.2
11 Hyderabad	1.4	16.5	2.1	12.3	1.1	18.7	1.5	15.2	2.5	12.7	0.8	17.1
12 Sukkur	0.6	11.5	0.3	13.0	0.8	10.8	0.7	11.7	0.6	14.2	0.7	10.1
13 Larkana	0.6	10.1	1.2	10.7	0.3	9.9	0.7	10.3	1.2	12.3	0.5	9.1
14 Peshawar	1.4	12.4	3.8	12.3	0.4	12.5	1.6	12.0	3.4	13.0	0.5	11.4
15 Bannu	1.4	10.6	2.0	8.9	1.2	11.4	1.4	9.6	2.7	10.1	0.6	9.3
16 Quetta	1.2	14.1	2.1	13.6	0.8	14.4	1.3	13.7	2.1	13.6	0.7	13.7
17 Khuzdar	1.6	9.0	0.4	7.6	2.2	9.6	0.7	6.7	0.5	7.4	0.9	6.2

Table A6: City- wise CPI Inflation (YoY) August 2019

City	High inflation cities			City	Low inflation cities		
	General	Food	Non-food		General	Food	Non-food
Bahawalnagar	19.2	21.5	17.8	Sargodha	11.5	13.6	10.2
Abbottabad	16.1	13.8	17.6	Gujranwala	11.5	16.5	8.1
Mardan	15.5	11.2	17.9	Mingora	11.3	13.3	10.1
Hyderabad	15.2	12.7	17.1	Dadu	11.2	13.1	10.0
D. I. Khan	15.1	13.9	15.8	Multan	11.2	13.7	9.5
Quetta	13.7	13.6	13.7	Islamabad	11.2	11.6	10.9
Jhelum	12.9	14.3	11.9	Muzaffargarh	11.2	12.1	10.5
Wazirabad	12.9	16.4	10.5	Rawalpindi	11.1	12.2	10.4
Karachi	12.8	12.3	13.2	Sahiwal	10.8	12.9	9.6
Mianwali	12.7	17.6	10.1	Faisalabad	10.5	12.3	9.4
Attock	12.6	12.0	12.9	R. Y. Khan	10.5	15.1	7.7
Mirpukhas	12.1	12.9	11.5	Larkana	10.3	12.3	9.1
Sialkot	12.0	13.7	10.9	Turbat	10.2	6.4	12.2
Peshawar	12.0	13.0	11.4	Bannu	9.6	10.1	9.3
Sukkur	11.7	14.2	10.1	Lahore	9.4	10.7	8.4
Jhang	11.6	12.0	11.4	Bahawalpur	9.3	12.0	7.8
				D. G. Khan	8.7	8.9	8.5
				D. M. Jamali	7.6	7.6	7.6
				Mithi	7.0	9.7	5.3
				Gawadar	6.9	3.8	8.8
				Loralai	6.7	8.7	5.6
				Khuzdar	6.7	7.4	6.2
				Nawabshah	5.9	4.1	7.1
				Vehari	5.2	8.2	3.3

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-18	Jul-19	Aug-19	Aug-18	Jul-19	Aug-19
<u>Up to Rs. 8000</u>						
General	0.4	2.4	1.8	4.6	9.2	10.7
Food	0.5	1.9	2.9	2.9	9.7	12.3
Non-food	0.2	3.1	0.5	6.7	8.6	8.9
<u>Rs. 8001- 12000</u>						
General	0.3	3.0	1.7	4.8	9.7	11.2
Food	0.4	1.7	2.8	3.0	9.4	12.1
Non-food	0.2	4.3	0.5	6.7	10.0	10.4
<u>Rs. 12001- 18000</u>						
General	0.2	3.0	1.6	5.1	9.7	11.2
Food	0.3	1.7	2.8	3.1	9.4	12.1
Non-food	0.2	4.2	0.6	6.9	9.9	10.3
<u>Rs. 18001- 35000</u>						
General	0.2	2.1	1.5	5.5	10.4	11.8
Food	0.2	1.6	2.7	3.2	9.4	12.2
Non-food	0.2	2.5	0.6	7.4	11.1	11.5
<u>Above Rs. 35000</u>						
General	0.2	1.8	1.2	6.6	11.0	12.1
Food	0.1	1.3	2.4	3.7	8.9	11.4
Non-food	0.2	2.0	0.6	8.0	12.0	12.4
<u>All income groups</u>						
General	0.2	2.3	1.4	5.8	10.3	11.6
Food	0.2	1.5	2.6	3.3	9.2	11.9
Non-food	0.2	2.8	0.6	7.6	11.1	11.5
Note: Computed based on CPI Numbers by Income Quintiles and Commodity Groups released by Pakistan Bureau of Statistics (PBS)						

Table A8: SPI Item-wise Price Movements

Sr.No.	Items	Unit	Prices	Percentage change	
			Aug-19	YoY	MoM
1	Wheat	10Kg.	362.5	9.3	1.2
2	Wheat Flour Bag	10Kg.	424.2	10.1	2.4
3	Rice Basmati Broken	Kg.	82.1	8.8	2.8
4	Rice Irri-6/9	Kg.	60.2	12.3	2.2
5	Bread Plain Med.Size (340-400 Gm.)	Each	46.6	9.4	2.9
6	Beef	Kg.	418.7	12.5	1.2
7	Mutton	Kg.	864.6	10.7	1.0
8	Chicken Live (Farm)	Kg.	153.4	-4.0	-7.4
9	Milk Fresh	Litr	91.5	7.4	1.9
10	Curd	Kg.	107.9	6.1	2.1
11	Milk Powdered Nido	500G	437.3	13.5	6.3
12	Egg Hen (Farm)	Doz.	91.8	-6.4	7.5
13	Mustard Oil	Kg.	197.2	5.3	1.0
14	Cooking Oil (Tin)	2.5Ltr	535.8	12.0	1.9
15	Veg. Ghee (Tin)	2.5Kg.	514.0	8.8	1.8
16	Veg.Ghee Loose	Kg.	169.9	13.7	4.1
17	Bananas	Doz.	89.7	3.8	-21.3
18	Masoor Pulse Washed	Kg.	125.1	11.4	1.3
19	Moong Pulse Washed	Kg.	169.9	49.0	3.7
20	Mash Pulse Washed	Kg.	178.4	20.1	4.1
21	Gram Pulse Washed	Kg.	128.4	11.6	1.2
22	Potatoes	Kg.	35.8	9.0	12.1
23	Onions	Kg.	50.4	46.1	-4.4
24	Tomatoes	Kg.	46.0	-19.1	-3.5
25	Sugar	Kg.	72.4	31.1	2.2
26	Gur	Kg.	106.5	31.4	3.9
27	Salt Powdered Loose (Lahori)	Kg.	12.4	7.2	0.0
28	Red Chillies Powder Loose	Kg.	346.8	0.3	-0.3
29	Garlic	Kg.	233.7	91.8	7.6
30	Tea (Yellow Lable 200 Gm.)	200Gm.	219.5	8.7	0.0
31	Cooked Beef Plate	Each	126.0	12.6	2.8
32	Cooked Dal Plate	Each	65.5	6.7	1.9
33	Tea Prepared (Sada)	Cup	24.5	13.9	2.2
34	Cigarettes K-2 (20'S)	20'S	75.9	48.4	11.6
35	Long Cloth (Coarse Latha)	Mtr.	298.7	28.8	2.5
36	Shirting	Mtr.	195.6	9.5	2.8
37	Lawn	Mtr.	336.6	17.0	1.2
38	Georgette (Voil Printed)	Mtr.	142.9	8.2	1.6
39	Sandal Gents Bata	Pair	699.0	0.0	0.0
40	Chappal Spng.Bata (Gents)	Pair	199.0	0.0	0.0
41	Sandal Ladies Bata	Pair	599.0	0.0	0.0
42	Electric Charges 1-50	Unit	2.0	0.0	0.0
43	Gas Charges Upto 3.3719	Mmbtu	221.0	71.7	52.3
44	Kerosene	Litr	131.3	6.9	0.2
45	Firewood	40Kg	650.8	3.9	0.7
46	Energy Savor 14 Watt	Each	174.2	1.8	1.4
47	Washing Soap (200-250 Gm.)	Cake	31.9	14.7	1.4
48	Match Box	Each	2.5	6.5	0.0
49	Petrol	Litr	113.7	17.0	0.0
50	Diesel	Litr	127.8	10.7	0.0
51	L.P.G.(11 Kg Cylander.)	Each	1288.2	-0.4	4.8
52	Tele. Local Call	Call	4.7	18.0	0.0
53	Bath Soap Lifebouy (Standard)	Cake	42.2	6.3	2.7
Maximum				91.8	52.3
Median				9.4	1.6
Minimum				-19.1	-21.3

Table A9: Distribution of Price Changes (YoY) - WPI Items: August 2019				
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, Fibre Crops, Eggs	Raw Animal Material/Wool, Fresh Fruits, Other Oil Seeds, Milk From Bovine Animals	Unmanufactured Tobacco, Millet/Bajra, Wheat, Fuel Wood In Logs, Dry Fruits	Poultry, Stimulant And Spice Crops, Edible Roots/Potatos, Sorghum/Jowar, Sugar Crops, Rice, Pulses, Cotton Seeds, Fish Live Fresh Or Chilled, Vegetables, Maize
Ores & Minerals, Electricity Gas & Water	Coal Not Agglomerated		Salt & Pure Sodium Chloride	Natural Gas Liquefied, Electrical Energy
Food Products, Beverages and Tobacco, Textiles, Apparel and Leather Products	Towels, Nylon Yarn, Footwears	Beverages, Ice Cream, Blankets, Quilts, Mineral Water, Processed Liquid Milk, Cotton Yarn, Woolen Carpets, Sugar Confectionary	Other Food Products, Chocolate, Hosiery Products, Oil Cakes, Meat Of Animals, Dairy Products N.E.C, Other Cereal Flour, Leather With Out Hairs, Bed Sheets, Fruit Juices, Blended Yarn, Silk And Reyon Fabrics, Coffee And Tea, Synthetic Carpets	Other Leather N.E.C, Sugar Refined, Spices, Tobbaco Products, Milk And Cream In Solid Form, Dried Fruits & Nuts, Woven Fabrics, Vegetable Ghee, Vegetables & Fruit Juices, Ready Made Garments, Other Fabrics, Cotton Fabrics, Vegetable Oil Refined, Wheat Flour
Other Transportable Goods except Metal Products, Machinery and Equipments	Cement, Coke, Hard Board	Plastic Products, Timber, Pesticides, Insecticised, Matches, Printing Paper	Ceramics And Sanitary, Soaps & Detergent	Dying Materials, Auto Tyres, Kerosine Oil, Motor Sprit, Diesel Oil, Glass Sheets, Furnace Oil, Chemicals, Fertilizers, Mobil Oil, Bed Foams, Bricks Blocks And Tiles, Other Glass Articles, Paints & Varnishes, Medicines,
Metal Product Machinery & Equipment	Engines And Motors, Vacuum Pumps, Pig Iron, Concrate Mixer, Cultivators, Chuff Cutter	Tractors, Lighting Equipments, Bicycles	Air Conditioners	Lathe Machines, Steel Bars & Sheets, Motor Cycles, Motor Vehicales, Pipe Fittings, Radio And Television, Refrige,Wash& Sew Mach,Iron,Fan, Electrical Wires, Steel Products

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

Items and specification	Weights	Index		
		Aug-18	Jul-19	Aug-19
General	100.00	229.27	252.46	255.94
Food & Non-Alcoholic Beverages.	34.83	238.58	256.84	264.07
1 Wheat	0.35	198.97	219.88	220.26
2 Wheat Flour	4.16	212.13	230.02	231.75
3 Wheat Product	0.10	213.31	223.74	226.28
4 Besan	0.15	265.36	279.51	284.44
5 Rice	1.58	197.74	209.34	210.49
6 Cereals	0.16	264.58	276.20	278.08
7 Bakery & Confectionary	1.16	228.93	245.40	246.26
8 Nimco	0.46	260.84	267.43	269.64
9 Meat	2.43	313.81	346.47	349.72
10 Chicken	1.36	152.83	185.74	235.18
11 Fish	0.30	228.91	241.19	242.55
12 Milk Fresh	6.68	287.03	300.69	303.28
13 Milk Product	0.63	277.39	292.69	295.45
14 Milk Powder	0.11	245.56	270.33	273.83
15 Eggs	0.46	199.90	181.35	194.97
16 Mustard Oil	0.10	164.27	174.51	175.81
17 Cooking Oil	1.75	141.32	152.98	158.63
18 Vegetable Ghee	2.07	147.39	161.99	168.25
19 Dry Fruits	0.25	293.19	313.97	312.97
20 Fresh Fruits	1.86	259.58	287.00	272.98
21 Pulse Masoor	0.27	157.72	174.59	176.58
22 Pulse Moong	0.23	217.75	321.91	323.18
23 Pulse Mash (Washed)	0.21	206.30	252.50	255.42
24 Pulse Gram	0.24	257.89	289.02	292.48
25 Gram Whole	0.16	267.44	260.31	262.42
26 Beans	0.03	245.51	272.86	275.37
27 Potatoes	0.47	218.08	247.12	266.23
28 Onion	0.53	253.14	319.24	411.47
29 Tomatoes	0.44	263.39	146.22	213.59
30 Fresh Vegetables	1.68	280.39	288.71	309.15
31 Sugar	1.04	199.54	258.46	267.95
32 Gur	0.02	252.43	327.31	337.51
33 Honey	0.04	351.07	411.66	415.24
34 Sweet Meet	0.25	271.54	288.51	291.72
35 Beverages	1.20	233.42	242.19	244.03
36 Jam, Tomato Ketchup & Pickle	0.25	232.81	250.17	250.53
37 Condiments	0.27	286.39	307.46	311.21
38 Spices	0.54	260.82	292.93	294.48
39 Tea	0.84	306.97	322.71	324.56
Alcoholic Beverages, Tobacco	1.41	313.47	425.76	428.89
40 Cigarettes	1.39	308.24	423.00	426.03
41 Betel Leaves & Nuts	0.02	630.86	593.32	602.78
Clothing & Footwear	7.57	254.67	272.94	276.34
42 Cotton Cloth	1.73	247.77	276.11	278.02
43 Woolen Cloth	0.88	267.11	293.26	295.21
44 Ready Made Garments	0.97	264.49	278.92	281.45
45 Woolen Readymade Garments	0.40	266.61	289.82	289.82
46 Hosiery	0.51	266.49	285.97	288.98
47 Dopatta	0.44	265.73	286.55	290.24
48 Cleaning & Laundering	0.21	291.30	313.50	314.95

Table A10: Consumer Price Index Numbers by Major Groups and Composite Commodities					
Items and specification		Weights	Index		
			Aug-18	Jul-19	Aug-19
49	Tailoring	0.88	349.60	368.36	370.77
50	Footware	1.55	179.97	181.78	189.92
Housing, Water, Elect, Gas & Other Fuel		29.41	210.71	228.37	237.55
51	House Rent	21.81	206.00	218.77	218.77
52	Construction Input Item	0.56	280.01	318.42	318.92
53	Construction Wage Rate	0.33	267.25	288.46	290.23
54	Water Supply	0.50	189.82	196.05	196.05
55	Electricity	4.40	238.10	265.08	265.08
56	Gas	1.58	158.08	383.45	383.45
57	Kerosene Oil	0.01	274.04	298.98	241.67
58	Fire Wood Whole	0.23	298.70	310.59	310.93
Furnished H.Hold Equip.& Maint. Etc		4.21	242.20	265.70	268.03
59	Furniture	0.33	237.77	263.38	265.29
60	Household Textile	0.65	243.45	257.79	260.48
61	Household Equipment	0.59	192.31	207.57	208.88
62	Utensils	0.32	255.56	286.54	289.15
63	Plastic Products	0.25	227.91	255.98	260.59
64	Washing Soap & Detergent	0.79	242.53	269.67	275.08
65	Sewing Needle & Dry Cell	0.15	221.16	240.25	242.52
66	Household Servant	1.04	271.59	299.97	299.97
67	Marriage Hall Charges	0.08	266.62	280.41	280.41
Health		2.19	225.20	244.82	245.21
68	Drug Medicine	1.27	190.58	210.54	211.05
69	Medical Equipment	0.01	261.95	285.70	287.38
70	Doctor (MBBS) Clinic Fee	0.59	304.41	325.23	325.23
71	Medical Test	0.32	215.21	231.24	231.83
Transport		7.20	204.74	232.44	235.99
72	Motor Vehicle	0.66	196.91	231.42	234.27
73	Motor Vehicle Accessories	0.24	218.65	245.41	247.82
74	Motor Fuel	3.03	184.60	223.28	229.44
75	Mechanical Service	0.46	244.82	261.43	262.54
76	Motor Vehicle Tax	0.11	210.18	211.97	247.08
77	Transport Services	2.70	221.00	237.73	237.75
Communication		3.22	133.78	145.39	145.77
78	Postal Services	0.07	272.45	347.68	347.68
79	Communication & Apparatus	3.15	130.86	141.15	141.54
Recreation & Culture		2.02	209.89	224.66	227.00
80	Recreation & Culture	0.86	137.22	138.20	139.83
81	Text Books	0.57	304.43	323.14	327.76
82	News Papers	0.19	202.94	242.78	242.78
83	Stationery	0.40	235.55	262.49	264.24
Education		3.94	281.89	301.36	301.75
84	Education	3.94	281.89	301.36	301.75
Restaurants And Hotels		1.23	295.01	316.32	319.62
85	Ready Made Food	1.23	295.01	316.32	319.62
Miscellaneous Goods And Services		2.76	264.45	296.18	302.58
86	Personal Care	1.49	240.91	256.33	257.64
87	Cosmetics	0.39	224.25	244.56	245.40
88	Blades	0.03	205.13	229.09	230.54
89	Personal Equipments	0.84	326.73	392.82	410.95

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

Items and Specifications	Index		
	Aug-18	Jul-19	Aug-19
General	241.93	272.34	274.74
Agriculture Forestry & Fishery	274.04	290.10	291.11
1 Wheat	204.53	223.47	223.19
2 Maize	222.24	256.44	244.68
3 Rice	181.28	210.48	209.04
4 Sorghum/Jowar	293.20	431.70	408.41
5 Millet/Bajra	249.84	276.28	272.95
6 Vegetables	346.19	353.28	387.89
7 Fresh Fruits	298.81	327.17	312.34
8 Dry Fruits	275.54	289.45	291.70
9 Cotton Seeds	268.41	303.71	303.71
10 Other Oil Seeds	196.32	206.07	204.45
11 Edible Roots/ Potatoes	207.46	244.73	306.66
12 Stimulant And Spice Crops	322.59	418.74	481.15
13 Pulses	232.09	262.69	263.87
14 Sugar Crops	257.62	349.69	349.69
15 Fibre Crops	281.00	265.72	258.56
16 Unmanufactured Tobacco	316.51	331.92	347.72
17 Poultry	159.15	192.98	245.06
18 Milk From Bovine Animals	285.13	292.16	292.99
19 Eggs	206.97	178.94	196.46
20 Raw Animal Material/Wool	176.92	187.42	185.60
21 Hides And Fur Skins, Raw	97.22	93.06	59.92
22 Fuel Wood In Logs	283.56	300.39	300.39
23 Fishes Live Fresh Or Chilled	451.22	506.24	506.11
Ores/Minerals, Gas & Elect.	244.14	352.31	352.11
24 Coal Not Agglomerated	155.29	155.29	155.29
25 Natural Gas Liquefied	213.53	407.99	407.52
26 Salt & Pure Sodium Chloride	269.74	290.99	295.35
27 Electrical Energy	288.00	321.72	321.72
Food, Beverages, Tobacco, Textiles	247.95	270.27	272.22
28 Meat Of Animals	339.60	367.93	368.83
29 Vegetables & Fruit Juices	228.62	243.83	257.55
30 Dried Fruits & Nuts	299.69	339.56	344.42
31 Fruit Juices	188.66	201.72	202.70
32 Vegetable Oil Refined	158.54	171.53	175.96
33 Vegetable Ghee	130.77	144.26	149.40
34 Oil Cakes	244.38	265.37	265.98
35 Processed Liquid Milk	296.67	306.92	305.39
36 Milk And Cream In Solid Form	225.34	258.09	261.29
37 Ice Cream	286.26	287.85	300.49
38 Dairy Products N.E.C	279.65	307.61	303.63
39 Wheat Flour	193.24	213.49	213.96
40 Other Cereal Flour	217.45	232.50	235.55
41 Sugar Refined	210.94	274.62	287.15
42 Chocolate	100.00	101.59	109.63
43 Sugar Confectionary	127.25	128.15	128.15
44 Coffee And Tea	279.34	293.62	295.14
45 Spices	202.35	252.10	252.81
46 Other Food Products	294.50	323.23	323.23
47 Mineral Water	211.50	219.33	219.67
48 Beverages	172.63	180.59	181.25
49 Tobacco Products	319.65	393.80	393.80
50 Cotton Yarn	280.03	288.43	287.52
51 Nylon Yarn	143.99	143.99	143.99
52 Blended Yarn	200.05	213.37	214.02
53 Woven Fabrics	321.49	367.78	367.78
54 Cotton Fabrics	219.87	230.85	244.57
55 Other Fabrics	227.85	239.51	253.96

Table A11: Wholesale Price Index Numbers by Major Groups and Composite Commodities				
Items and Specifications		Index		
		Aug-18	Jul-19	Aug-19
56	Silk And Rayon Fabrics	188.81	199.38	199.83
57	Towels	305.52	308.50	298.17
58	Blankets	265.03	277.52	277.52
59	Bed Sheets	256.87	277.23	277.23
60	Quilts	222.32	232.74	232.74
61	Woolen Carpets	196.43	199.40	199.40
62	Synthetic Carpets	131.80	138.98	138.98
63	Hosiery Products	250.36	274.49	272.90
64	Ready Made Garments	204.85	228.07	230.61
65	Leather With Out Hairs	212.68	229.55	229.55
66	Other Leather N.E.C	207.02	443.31	443.31
67	Footwear's	168.09	168.09	168.09
Other Transportable Goods		216.87	238.52	245.25
68	Timber	239.89	250.12	250.12
69	Printing Paper	172.70	174.76	174.76
70	Hard Board	291.67	291.67	291.67
71	Coke	163.45	163.45	163.45
72	Motor Sprit	164.49	190.37	199.07
73	Diesel Oil	244.20	271.61	291.12
74	Kerosene Oil	229.00	262.91	277.28
75	Furnace Oil	175.33	189.89	200.72
76	Mobil Oil	209.31	232.72	235.42
77	Chemicals	206.63	234.53	235.21
78	Dying Materials	150.72	157.67	194.38
79	Fertilizers	241.32	274.88	272.67
80	Pesticides	312.32	325.56	325.56
81	Insecticides	145.90	151.54	150.84
82	Paints & Varnishes	354.53	387.40	391.52
83	Medicines	178.61	197.27	196.75
84	Soaps & Detergent	193.00	203.10	204.45
85	Auto Tyres	178.97	228.67	228.82
86	Plastic Products	240.38	255.39	251.41
87	Glass Sheets	304.55	348.58	351.28
88	Other Glass Articles	318.10	351.41	351.41
89	Ceramics And Sanitary	243.24	263.26	263.26
90	Bricks Blocks And Tiles	223.76	247.51	249.76
91	Cement	238.70	239.52	235.70
92	Bed Foams	176.50	184.00	198.17
93	Matches	171.36	172.57	174.27
Metal Product Machinery & Equip		186.72	203.60	204.16
94	Pig Iron	128.97	128.97	128.97
95	Steel Bars & Sheets	170.86	206.19	206.94
96	Pipe Fittings	234.48	273.82	276.22
97	Steel Products	182.68	203.07	207.30
98	Engines And Motors	116.98	116.98	116.98
99	Vacuum Pumps	123.69	123.69	123.69
100	Air Conditioners	203.80	221.55	223.39
101	Cultivators	190.66	190.66	190.66
102	Chuff Cutter	153.46	153.46	153.46
103	Tractors	216.82	226.93	226.93
104	Lathe Machines	241.06	348.09	348.09
105	Concrete Mixer	138.83	138.83	138.83
106	Fridge,Wash& Sew Mach, Iron,Fan	228.73	265.69	266.02
107	Electrical Wires	208.22	222.49	240.96
108	Lighting Equipments	174.04	179.06	179.06
109	Radio And Television	140.42	164.81	164.81
110	Motor Vehicles	218.11	262.69	262.69
111	Motor Cycles	134.21	161.98	161.98
112	Bicycles	191.22	196.16	196.16

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

Period		CPI			WPI			SPI *
		Overall	Food	Non-food	Overall	Food	Non-Food	
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
2018-19		236.81	242.61	248.44	250.28	269.48	238.10	240.94
2017	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	226.67	241.35	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
	Sep	229.14	241.65	221.64	238.25	260.81	223.95	228.27
	Oct	234.49	246.27	227.43	248.19	266.83	236.36	235.22
	Nov	234.75	245.08	228.56	249.92	264.02	240.97	238.35
	Dec	233.78	241.70	229.03	247.72	261.58	238.93	238.12
2019	Jan	236.11	242.53	232.26	247.21	263.50	236.87	239.07
	Feb	237.61	246.03	232.56	249.44	265.38	239.32	244.35
	Mar	240.98	253.20	233.66	253.67	272.71	241.59	248.19
	Apr	244.03	257.44	235.99	259.57	280.77	246.11	250.70
	May	245.94	260.21	237.39	263.29	285.88	248.95	253.78
	Jun	246.82	261.13	238.24	264.15	286.61	249.89	257.34
	Jul	252.46	265.16	244.85	272.34	287.18	262.93	263.01
	Aug	255.94	272.11	246.25	274.74	290.27	264.89	270.51

*: all groups combined

Table A13: International Commodity Prices/Indices

	May-19	Jun-19	Jul-19	Aug-19
Energy				
Crude Oil (US\$ per barrel) *	66.8	59.8	61.5	57.7
Energy Index (2010 = 100)	81.8	73.1	74.9	70.3
Food				
Rice (\$/MT)	409.0	420.0	416.0	430.0
Wheat (\$/MT)	199.5	206.1	196.2	181.1
Sugar (US cent/ pound)^	0.27	0.28	0.28	0.27
Palm Oil (\$/MT)	563.2	552.2	543.9	586.1
Soybean Oil (\$/MT)	742.5	742.9	748.2	793.2
Non-Food Non-Energy				
Cotton Outlook 'A' Index #^	1.8	1.7	1.7	1.6
Metal Price Index (2010 = 100)	81.0	79.4	80.7	78.9
Copper (\$/MT)	6,017.9	5,882.2	5,941.2	5,709.4
Aluminum (\$/MT)	1,781.3	1,756.0	1,797.0	1,740.7
Iron Ore (\$ cents/dry MT)	100.2	108.9	120.2	93.1
Tin (\$/MT)	19,523.9	19,193.2	17,977.9	16,609.0
Nickel (\$/MT)	12,016.3	11,943.9	13,546.3	15,748.6
Zinc (\$/MT)	2,742.8	2,601.2	2,446.5	2,273.0
Lead (\$/MT)	1,815.2	1,899.7	1,975.6	2,044.6
Uranium (\$/MT)@	24.1	24.6	25.4	25.3
DAP (\$/MT)	313.4	314.9	314.9	292.9
Urea (\$/MT)	247.5	247.5	247.5	262.5

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. cents / \$/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	FY16	FY17	FY18	FY19	FY20
Jul	201.76	210.08	216.19	228.80	252.46
Aug	202.25	209.46	216.61	229.27	255.94
Sep	202.04	209.88	217.98	229.14	
Oct	203.03	211.57	219.61	234.49	
Nov	204.22	212.01	220.42	234.75	
Dec	203.06	210.57	220.20	233.78	
Jan	203.49	210.94	220.27	236.11	
Feb	202.98	211.54	219.58	237.61	
Mar	203.28	213.32	220.25	240.98	
Apr	206.43	216.30	224.25	244.03	
May	205.99	216.33	225.40	245.94	
Jun	207.30	215.45	226.68	246.82	
Seasonally Adjusted Series					
Jul	200.78	209.08	215.20	227.81	251.42
Aug	201.02	208.21	215.39	228.05	254.62
Sep	200.98	208.88	217.04	228.26	
Oct	201.54	210.06	218.08	232.90	
Nov	203.17	210.95	219.34	233.65	
Dec	204.07	211.58	221.23	234.88	
Jan	204.34	211.88	221.32	237.25	
Feb	205.05	213.67	221.75	239.86	
Mar	205.06	215.19	222.17	242.35	
Apr	206.15	215.95	223.84	243.55	
May	206.02	216.28	225.23	245.67	
Jun	207.58	215.65	226.78	246.86	

Table 15: CPI Food Data Series Original and Seasonally Adjusted					
Original Series					
Period	FY16	FY17	FY18	FY19	FY19
Jul	224.14	234.69	234.47	242.74	265.16
Aug	224.86	232.48	235.38	243.25	272.11
Sep	223.87	232.80	238.43	241.65	
Oct	224.86	234.68	239.89	246.27	
Nov	227.55	235.17	240.79	245.08	
Dec	223.90	230.69	239.43	241.70	
Jan	222.58	228.45	236.92	242.53	
Feb	221.07	229.19	234.31	246.03	
Mar	222.25	233.47	233.67	253.20	
Apr	227.53	237.50	237.08	257.44	
May	225.84	237.01	239.36	260.21	
Jun	228.95	234.37	241.37	261.13	
Seasonally Adjusted Series					
Jul	222.39	232.92	232.77	241.08	263.47
Aug	221.95	229.53	232.49	240.40	269.02
Sep	221.09	230.09	235.82	239.14	
Oct	221.56	231.38	236.60	242.89	
Nov	224.61	232.21	237.80	242.08	
Dec	225.44	232.18	240.94	243.26	
Jan	225.03	231.20	239.99	245.88	
Feb	225.92	234.14	239.32	251.19	
Mar	225.61	236.97	237.14	255.03	
Apr	227.86	237.73	237.23	257.50	
May	226.34	237.33	239.46	260.14	
Jun	229.45	234.63	241.37	260.97	

Table 16: CPI Monthly & Average Seasonal Factors

Period	FY16	FY17	FY18	FY19	FY20	Average
Jul	100.49	100.48	100.46	100.43	100.41	100.45
Aug	100.61	100.60	100.57	100.53	100.52	100.57
Sep	100.53	100.48	100.43	100.39		100.46
Oct	100.74	100.72	100.70	100.68		100.71
Nov	100.52	100.50	100.49	100.47		100.50
Dec	99.50	99.52	99.53	99.53		99.52
Jan	99.58	99.56	99.53	99.52		99.55
Feb	98.99	99.01	99.02	99.06		99.02
Mar	99.13	99.13	99.14	99.44		99.21
Apr	100.14	100.16	100.18	100.20		100.17
May	99.98	100.03	100.08	100.11		100.05
Jun	99.86	99.91	99.96	99.99		99.93

Table 17: CPI Food Monthly & Average Seasonal Factors

Period	FY16	FY17	FY18	FY19	FY20	Average
Jul	100.79	100.76	100.73	100.69	100.64	100.72
Aug	101.31	101.29	101.24	101.19	101.15	101.23
Sep	101.26	101.18	101.11	101.05		101.15
Oct	101.49	101.42	101.39	101.39		101.42
Nov	101.31	101.28	101.26	101.24		101.27
Dec	99.32	99.36	99.37	99.36		99.35
Jan	98.91	98.81	98.72	98.64		98.77
Feb	97.85	97.88	97.91	97.95		97.90
Mar	98.51	98.52	98.54	98.54		98.53
Apr	99.85	99.90	99.94	99.98		99.92
May	99.78	99.87	99.96	100.03		99.91
Jun	99.78	99.89	100.00	100.06		99.93

Table 18: CPI Month-on-Month % Change Original & Seasonally Adjusted					
Original Series					
Period	FY16	FY17	FY18	FY19	FY20
Jul	0.43	1.34	0.34	0.94	2.29
Aug	0.24	-0.30	0.19	0.21	1.38
Sep	-0.10	0.20	0.63	-0.06	
Oct	0.49	0.81	0.75	2.33	
Nov	0.59	0.21	0.37	0.11	
Dec	-0.57	-0.68	-0.10	-0.41	
Jan	0.21	0.18	0.03	1.00	
Feb	-0.25	0.28	-0.31	0.64	
Mar	0.15	0.84	0.31	1.42	
Apr	1.55	1.40	1.82	1.27	
May	-0.21	0.01	0.51	0.78	
Jun	0.64	-0.41	0.57	0.36	
Seasonally Adjusted Series					
Jul	-0.24	0.72	-0.21	0.46	1.85
Aug	0.12	-0.42	0.09	0.11	1.27
Sep	-0.02	0.32	0.76	0.09	
Oct	0.28	0.57	0.48	2.03	
Nov	0.81	0.42	0.57	0.32	
Dec	0.44	0.30	0.87	0.52	
Jan	0.13	0.14	0.04	1.01	
Feb	0.35	0.84	0.19	1.10	
Mar	0.00	0.72	0.19	1.04	
Apr	0.53	0.35	0.76	0.50	
May	-0.06	0.15	0.62	0.87	
Jun	0.76	-0.29	0.69	0.48	

Table 19: CPI Food Month-on-Month % Change Original & Seasonally Adjusted					
Original Series					
Period	FY16	FY17	FY18	FY19	FY20
Jul	0.13	2.50	0.04	0.57	1.54
Aug	0.32	-0.94	0.39	0.21	2.62
Sep	-0.44	0.14	1.29	-0.66	
Oct	0.44	0.81	0.61	1.91	
Nov	1.20	0.21	0.37	-0.48	
Dec	-1.61	-1.90	-0.56	-1.38	
Jan	-0.59	-0.97	-1.05	0.34	
Feb	-0.68	0.32	-1.11	1.44	
Mar	0.54	1.87	-0.27	2.91	
Apr	2.38	1.73	1.46	1.67	
May	-0.74	-0.21	0.96	1.08	
Jun	1.38	-1.11	0.84	0.35	
Seasonally Adjusted Series					
Jul	-0.98	1.51	-0.79	-0.12	0.96
Aug	-0.20	-1.46	-0.12	-0.28	2.11
Sep	-0.39	0.24	1.43	-0.52	
Oct	0.22	0.56	0.33	1.57	
Nov	1.38	0.36	0.51	-0.33	
Dec	0.37	-0.01	1.32	0.49	
Jan	-0.18	-0.42	-0.39	1.08	
Feb	0.39	1.27	-0.28	2.16	
Mar	-0.14	1.21	-0.91	1.53	
Apr	1.00	0.32	0.03	0.97	
May	-0.67	-0.17	0.94	1.02	
Jun	1.38	-1.14	0.80	0.32	

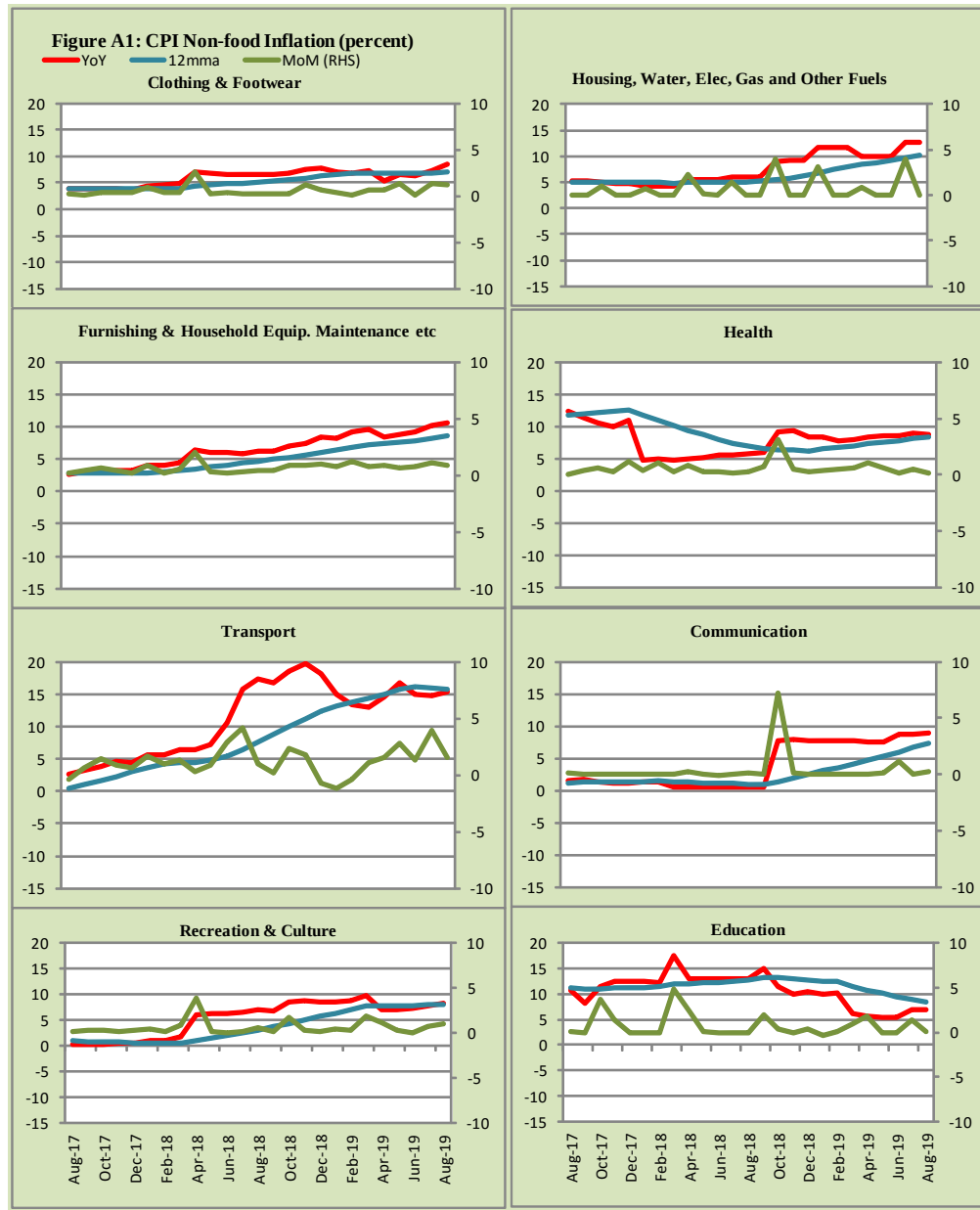
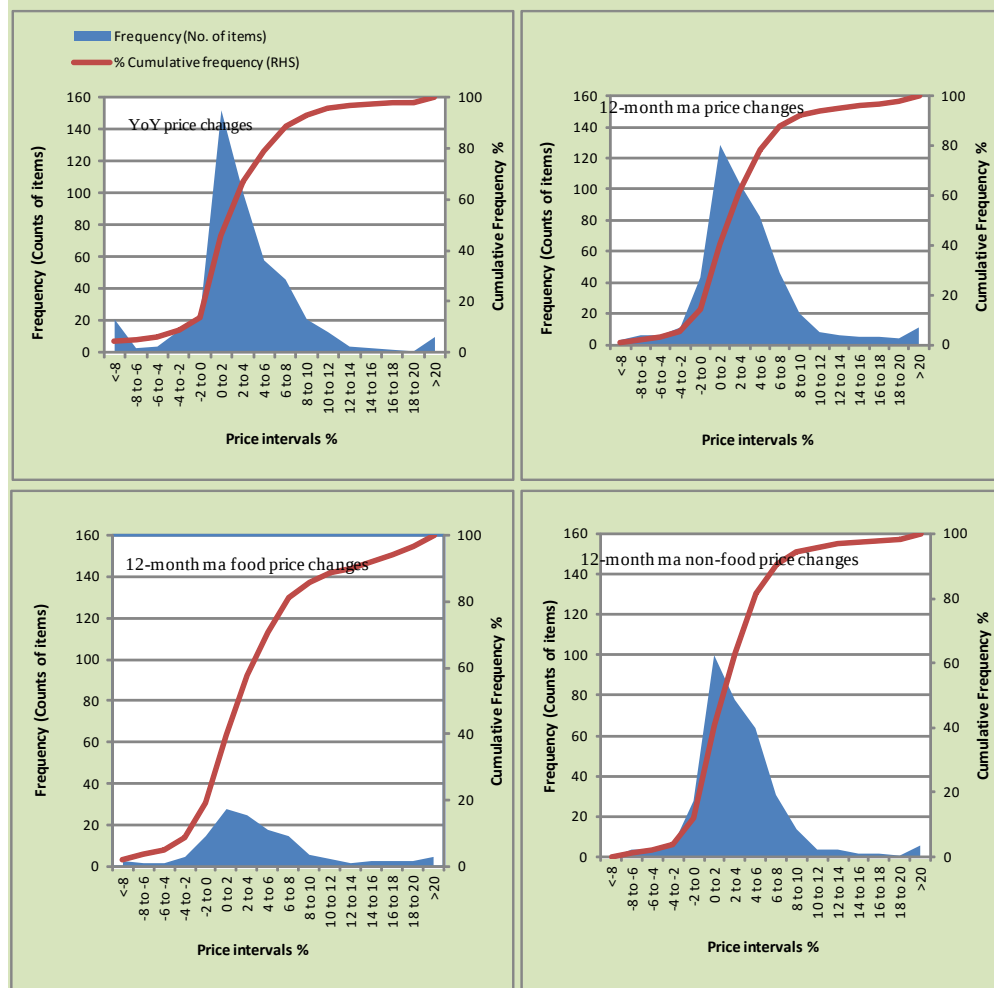
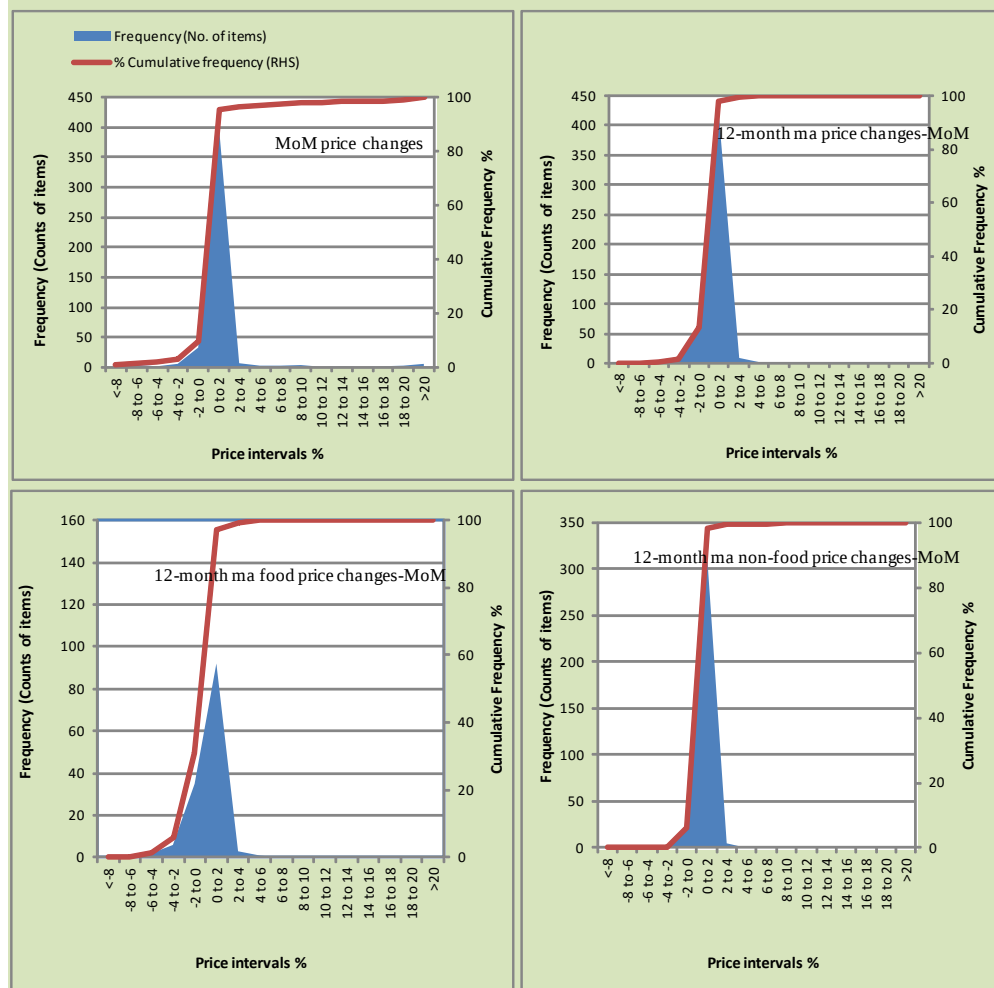


Figure A2: Frequency Distribution of Price Changes of CPI Items, August 2019 - YoY



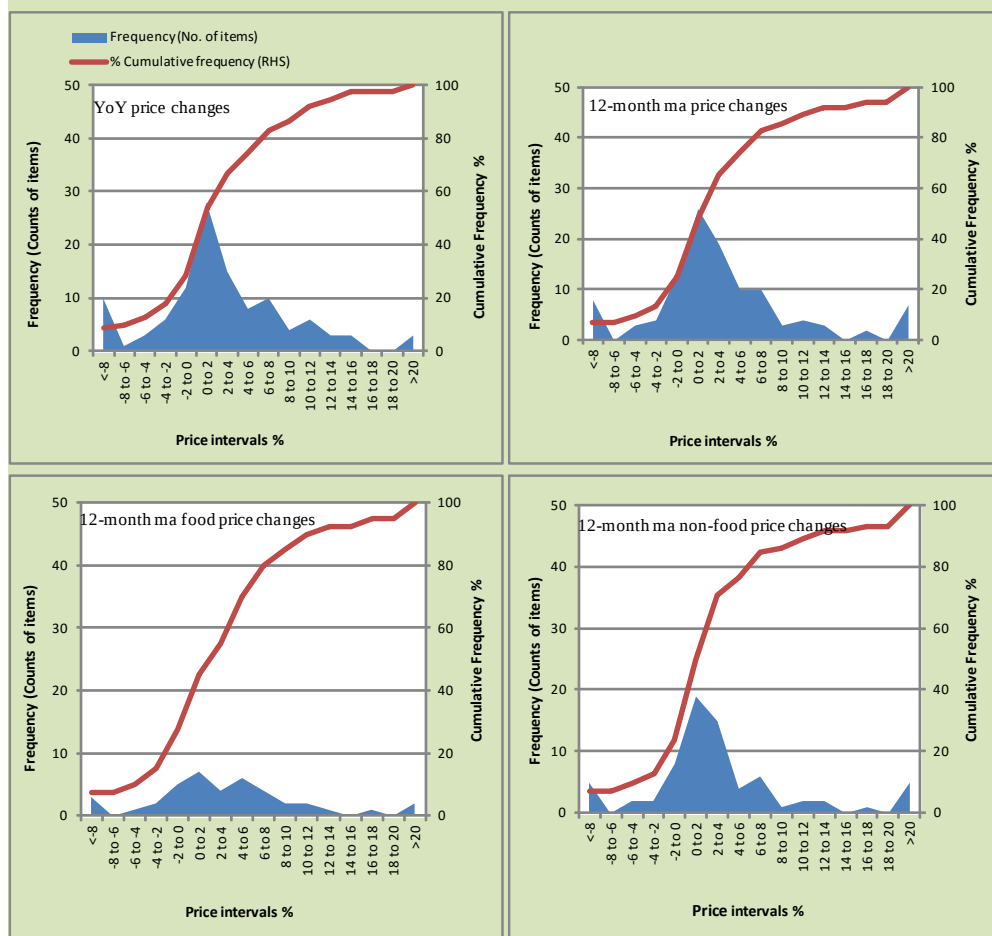
Total items in CPI basket (487), Food items (139) and Non-food items (348)

Figure A2.1: Frequency Distribution of Price Changes of CPI Items, August 2019 - MoM



Total items in CPI basket (487), Food items (139) and Non-food items (348)

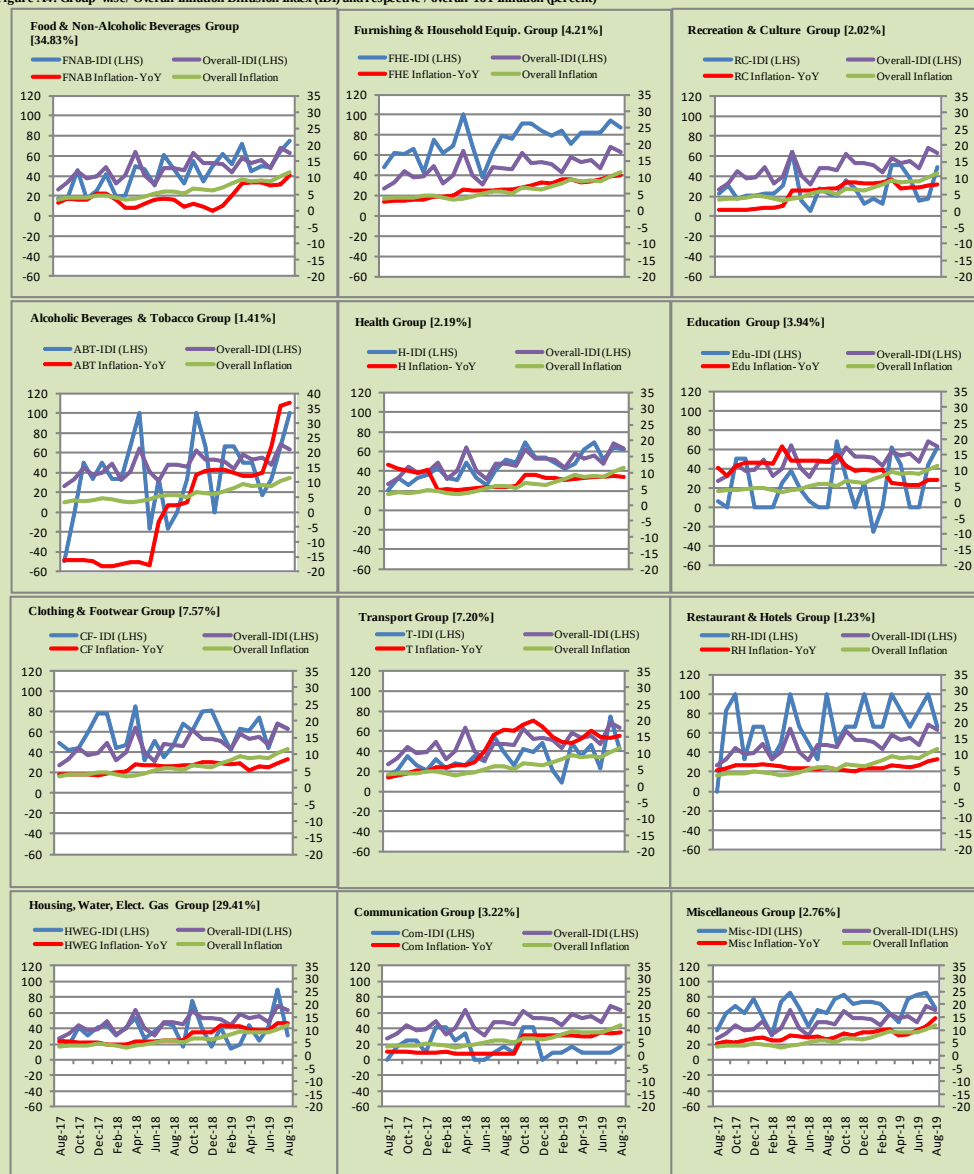
Figure A3: Frequency Distribution of Price Changes of WPI Commodities, August 2019 - YoY



Total commodities in WPI basket (112), Food items (40) and Non-food items (72)

Inflation Monitor, August 2019

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.