

Inflation Monitor

May 2019



State Bank of Pakistan

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Review

Inflation in Brief

1. Headline CPI inflation (2007-08=100) is recorded at level of 9.1 percent on year-on-year basis in May 2019 as compared to 8.8 percent in the previous month and 4.2 percent during corresponding month of last year.
2. CPI inflation on month-on-month basis is recorded at level of 0.8 percent in May 2019 as compared to 1.3 percent in the previous month and 0.5 percent during corresponding month of last year. Seasonally adjusted month-on-month CPI inflation is recorded at 0.89 percent in May 2019 compared to 0.52 percent in the previous month.
3. Core inflation (trimmed) on year-on-year basis is recorded at 7.5 percent in May 2019 as compared to 7.2 percent in the previous month and 5.1 percent during corresponding month of last year.
4. On month-on-month basis, the Core inflation (trimmed) is recorded at 0.4 percent in May 2019, as compared to 0.9 percent in the previous month and 0.3 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 7.2 percent in May 2019 as compared to 7.0 percent in the previous month and corresponding month of last year.
6. Core NFNE inflation on month-on-month basis recorded at 0.4 percent in May 2019 as compared to 1.0 percent in the previous month. Core NFNE inflation was 0.2 percent in the corresponding month of last year.
7. WPI inflation on year-on-year basis recorded at 14.0 percent in May 2019 as compared to 13.8 percent in the previous month and 5.6 percent during the corresponding month of last year.

8. WPI inflation on month-on-month basis recorded at 1.4 percent in May 2019 as compared to 2.3 percent in the previous month. It was 1.3 percent in the corresponding month of last year.
9. SPI inflation on year-on-year basis recorded at 13.1 percent in May 2019 as compared to 12.4 percent in the previous month. It was 1.7 percent in the corresponding month of last year.
10. SPI inflation on month-on-month basis recorded at 1.2 percent in May 2019 as compared to 1.0 percent in the previous month. It was 0.5 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 May 2019 are described below:

11. Core RSC inflation on year-on-year basis is recorded at 8.1 percent in May 2019 as compared to 8.0 percent in the previous month and 5.3 percent during the corresponding month of last year.
12. Core RSC inflation on month-on-month basis is recorded at 0.4 percent in May 2019 as compared to 0.9 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**					
	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM
May-18	4.2	0.5	1.0	1.0	6.4	0.2	7.0	0.2	5.1	0.3	5.3	0.3	5.6	1.3	1.7	0.5
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	1.7
Jul-18	5.8	0.9	3.5	0.6	7.4	1.2	7.6	1.2	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	7.7	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	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	7.0	1.0	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
* NFNE is Non-food non-energy ** Relatively Stable Component of CPI *** SPI for all income groups combined																

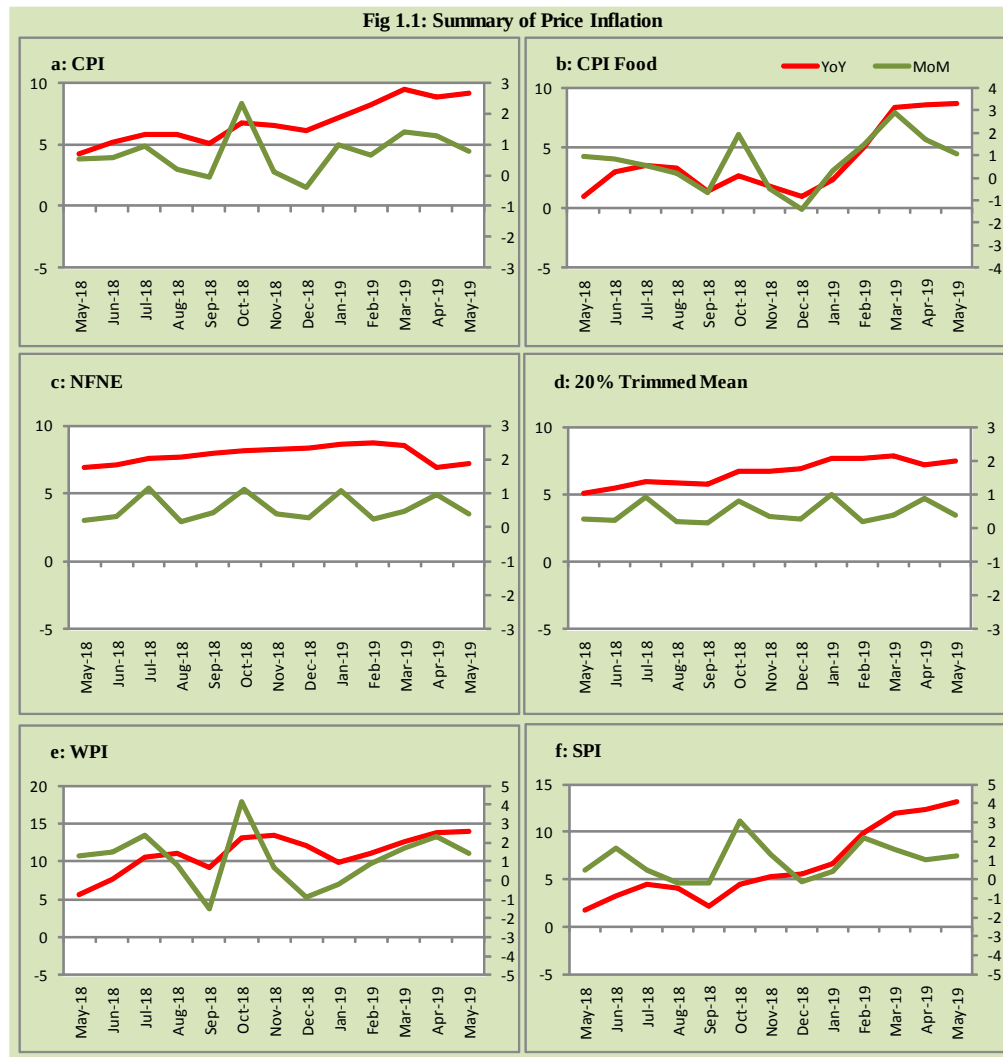
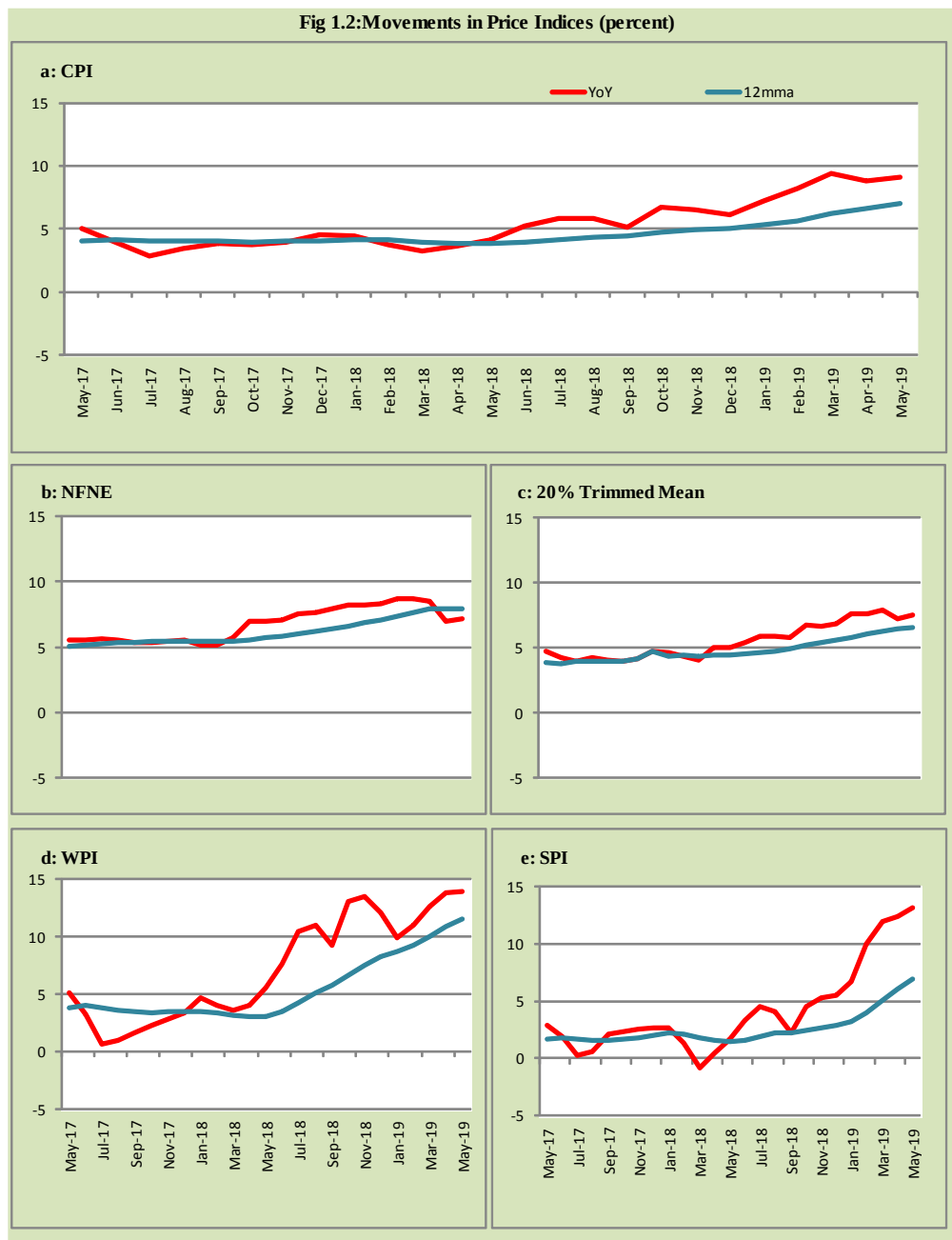


Fig 1.2: Movements in Price Indices (percent)



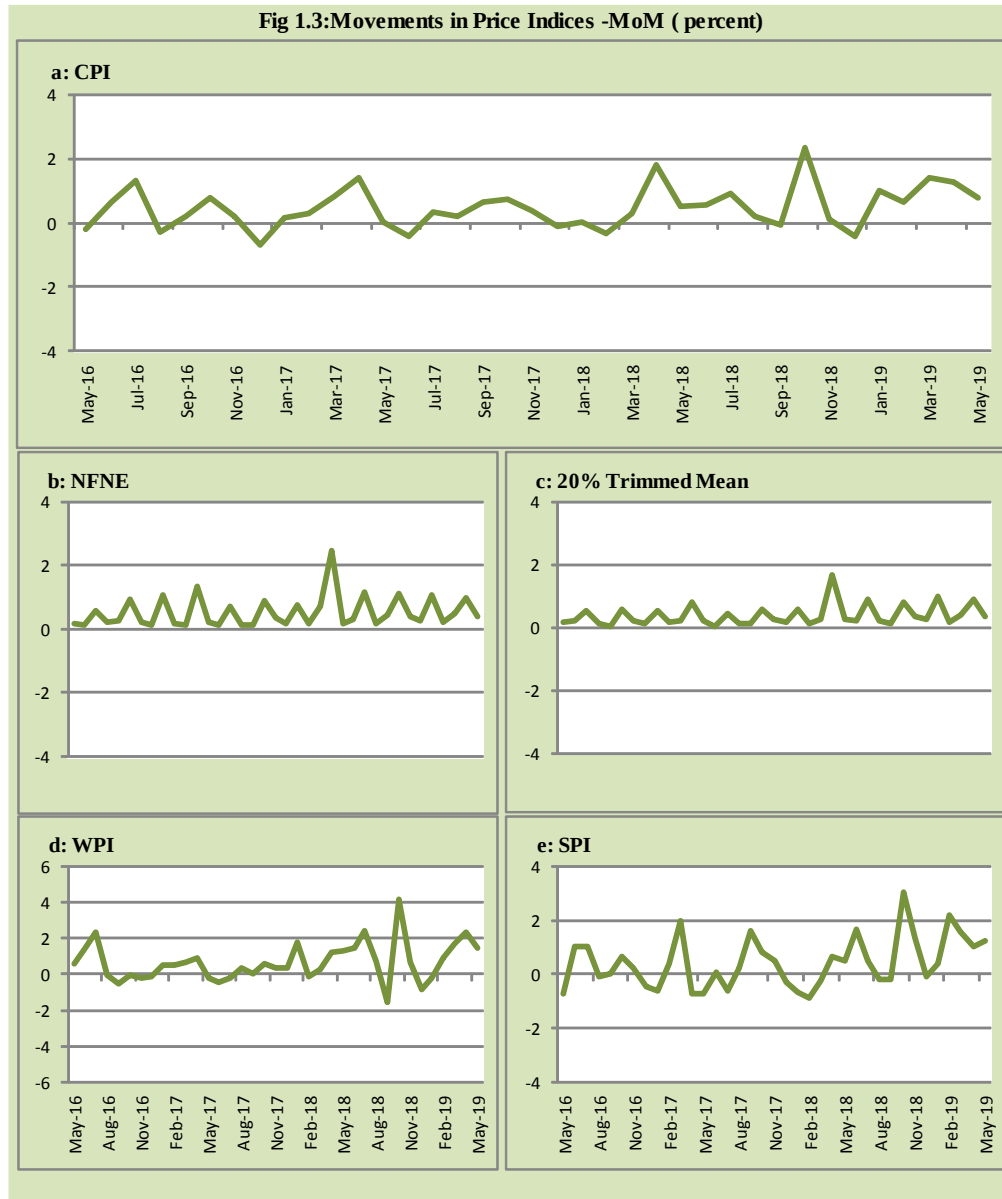
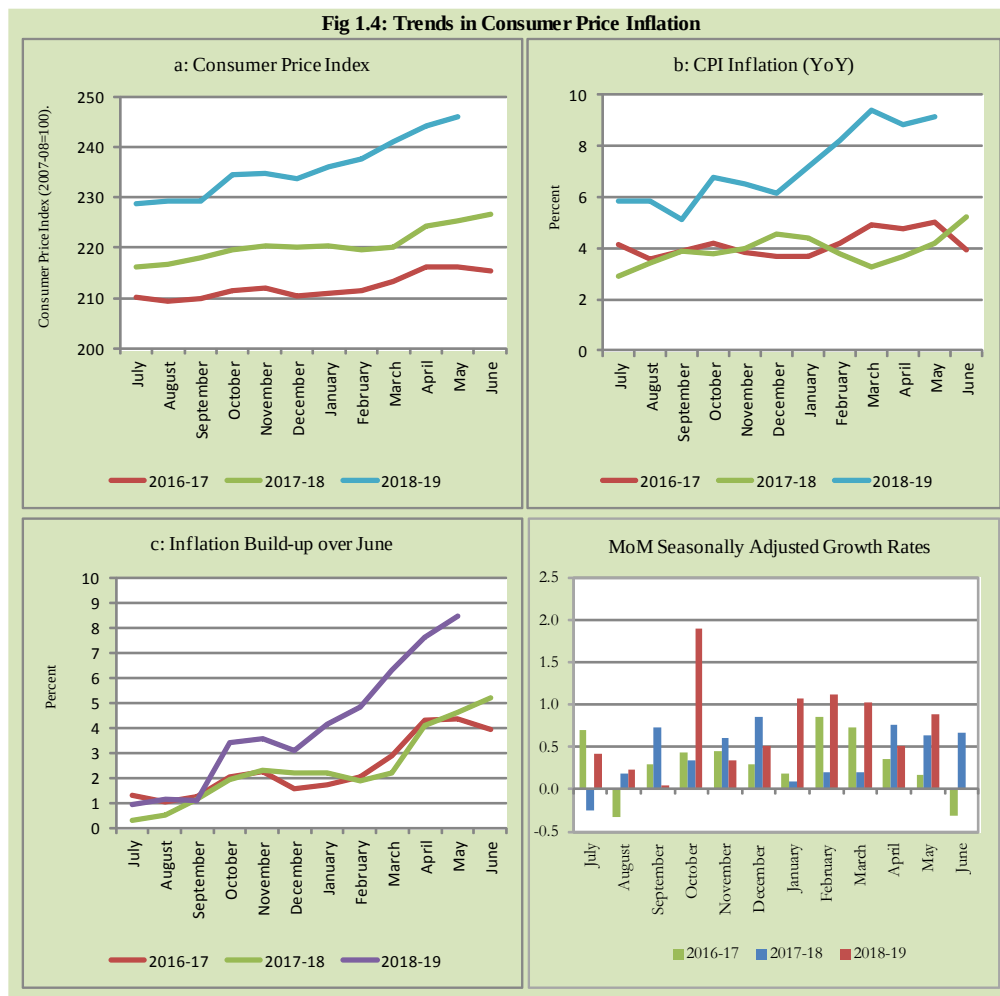


Fig 1.4: Trends in Consumer Price Inflation



2. City wise Inflation

CPI Inflation on year-on-year basis in federal and provincial capitals of Pakistan showed mixed trend during May 2019. Among these five cities, the lowest inflation was observed in Lahore at 6.6 percent while the highest inflation was observed in Peshawar at 11.5 percent (Table A6 of annexure-A).

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

	May-18		Apr-19		May-19	
	MoM	YoY	MoM	YoY	MoM	YoY
Overall CPI	0.5	4.2	1.3	8.8	0.8	9.1
Islamabad	0.2	4.3	1.1	7.8	0.3	7.9
Karachi	0.0	3.5	0.7	7.0	1.3	8.4
Lahore	0.8	4.1	2.3	6.8	0.6	6.6
Peshawar	0.3	3.6	1.2	10.8	0.8	11.5
Quetta	1.4	8.8	1.9	11.3	0.6	10.3

3. Income Group wise Inflation

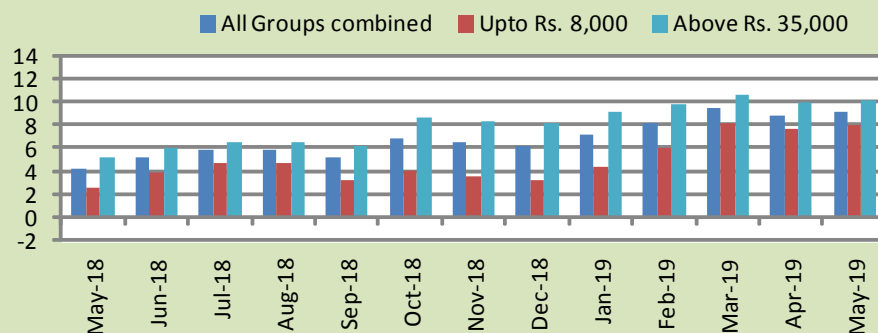
Income group-wise data shows that income group above Rs. 35,000 witnessed higher inflation as compared to other quintiles as well as overall CPI General during May 2019. The income group (Rs. 12,001- 18,000) observed lowest inflation in general CPI during the month of May 2019. The income group (above Rs. 35,000) witnessed lower inflation as compared to other quintiles in food group during May 2019. (Table A7 of annexure-A).

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

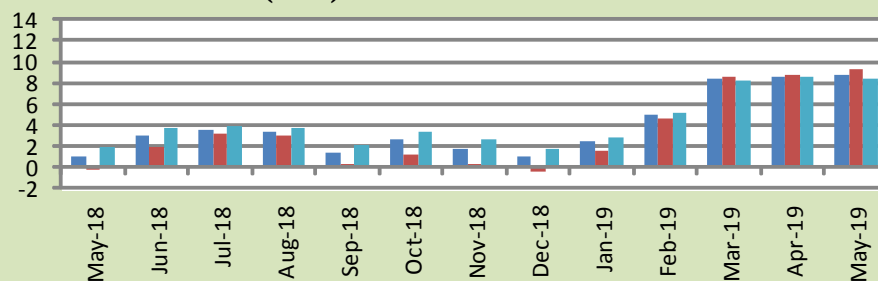
Income Groups	General			Food			Non-food		
	May-18	Apr-19	May-19	May-18	Apr-19	May-19	May-18	Apr-19	May-19
All Groups Combined	4.2	8.8	9.1	1.0	8.6	8.7	6.4	9.0	9.4
Up to Rs. 8,000	2.6	7.6	8.0	-0.1	8.7	9.2	5.8	6.3	6.7
Rs. 8,001- 12,000	3.0	7.5	7.9	0.3	8.6	9.0	5.8	6.5	6.8
Rs. 12,001- 18,000	3.3	7.5	7.8	0.4	8.7	8.9	6.0	6.5	6.9
Rs. 18,001- 35,000	3.6	9.1	9.3	0.6	8.7	8.8	6.1	9.4	9.8
Above Rs. 35,000	5.1	9.9	10.2	1.9	8.5	8.4	6.7	10.6	11.0

Fig 3.1: Income Group- wise Inflation

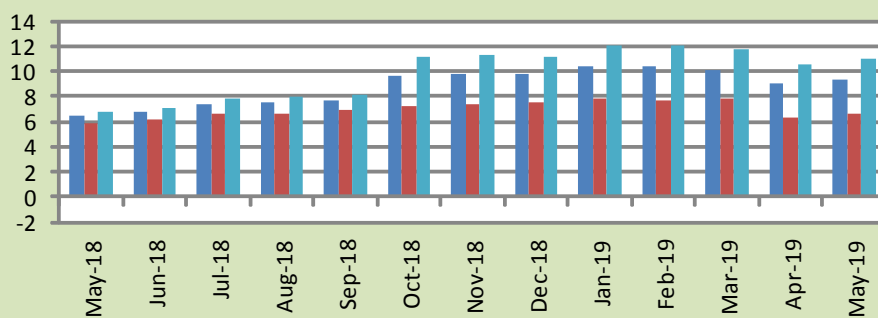
a: CPI Overall Inflation (YoY)



b: CPI Food Inflation (YoY)



c: CPI Non-Food Inflation (YoY)



4. Weighted Contribution

The weighted contribution of food group in the overall inflation marginally decreased to 38.04 percent during May 2019 from 38.58 percent in previous month. It was 9.73 percent during corresponding month of last year.

The weighted contribution of non-food group marginally increased to 61.96 percent in May 2019 from 61.42 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
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
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

5. Inflation Diffusion Index

Table 5.1 Inflation Diffusion Index - based on MoM change

	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19
General	40.6	31.5	47.8	47.7	45.9	62.4	52.7	53.1	51.3	43.6	58.3	53.2	55.3
Food & Non-Alcoholic Beverages	46.3	30.1	60.9	46.5	32.2	54.3	35.0	49.6	62.3	51.8	71.7	44.5	50.0
Alcoholic Beverages & Tobacco	-16.7	33.3	-16.7	0.0	33.3	100.0	66.7	0.0	66.7	66.7	50.0	50.0	16.7
Clothing & Footwear	32.2	50.8	35.6	45.8	67.8	61.0	79.7	81.4	61.0	42.4	62.7	61.0	74.6
Housing, Water, Elect, Gas & other Fuels	27.8	36.1	47.2	44.4	16.7	75.0	38.9	16.7	41.7	13.9	19.4	44.4	25.0
Furnishing & Household Equip. Maintenance etc	69.6	37.7	63.8	79.7	76.8	91.3	91.3	84.1	79.7	84.1	71.0	82.6	82.6
Health	33.3	25.6	41.0	51.3	48.7	69.2	53.8	53.8	48.7	42.1	47.4	61.5	69.2
Transport	34.9	30.2	55.8	39.5	25.6	41.9	39.5	48.8	20.9	9.3	48.8	34.9	46.5
Communication	0.0	0.0	8.3	16.7	8.3	41.7	41.7	0.0	8.3	8.3	16.7	8.3	8.3
Recreation & Culture	15.4	5.1	28.2	23.1	20.5	35.9	28.2	12.8	17.9	12.8	51.3	51.3	38.5
Education	18.8	6.3	0.0	0.0	68.8	31.3	0.0	25.0	-25.0	0.0	62.5	43.8	0.0
Restaurant & Hotels	66.7	50.0	33.3	100.0	50.0	66.7	66.7	100.0	66.7	66.7	100.0	83.3	66.7
Miscellaneous	65.7	42.9	62.9	60.0	77.1	82.9	71.4	74.3	74.3	71.4	60.0	48.6	77.1
NFNE	39.3	31.4	45.0	48.8	52.7	66.9	58.9	56.5	47.6	42.1	54.3	55.9	58.0

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	May-18		Apr-19		May-19	
			YoY	MoM	YoY	MoM	YoY	MoM
1	Wheat	10 Kg	-0.10	-3.29	4.76	-1.97	7.40	-0.86
2	Wheat Flour Bag	10 Kg	-1.76	-2.25	3.96	-0.97	7.53	1.10
3	Rice Basmati Sup. Qlty.	Kg	11.00	0.32	6.46	0.53	6.44	0.30
4	Pulse Masoor (Washed)	Kg.	-12.93	-0.59	5.20	0.42	6.34	0.49
5	Pulse Moong (Washed)	Kg.	-11.47	-0.42	26.20	2.67	33.65	5.46
6	Pulse Mash (Washed)	Kg.	-25.44	-1.65	2.48	-0.37	10.38	5.93
7	Pulse Gram	Kg.	-13.25	-1.32	8.89	-0.90	11.43	0.98
8	Vegetable Ghee (Loose)	Kg.	1.82	0.57	9.62	0.77	9.32	0.29
9	Sugar Refined	Kg.	-10.07	-0.13	22.17	6.76	26.53	3.43
10	Milk Fresh (Unboiled)	Ltr	3.50	0.59	4.03	0.64	3.55	0.13
11	Tapal Danedar Tea 200 Gm	Pkt	10.43	0.00	3.23	0.07	3.23	0.00
12	Beef With Bone Av.Qlty.	Kg	8.42	0.71	13.26	1.30	13.21	0.67
13	Mutton Av.Qlty.	Kg	12.00	1.08	11.48	0.87	12.04	1.59
14	Chicken Farm Broiler (Live)	Kg	21.04	7.25	4.07	9.90	-8.14	-5.33
15	Eggs Farm	Doz	6.55	1.04	-8.61	-19.88	-10.53	-1.09
16	Potatoes	Kg	-24.59	17.61	-3.50	6.08	3.21	25.80
17	Onion	Kg	-0.17	-2.57	35.99	4.87	77.52	27.19
18	Tomatoes	Kg	-9.82	3.07	124.29	-41.42	46.11	-32.86
19	Ginger	Kg	30.18	3.79	15.85	6.21	14.26	2.36
20	Garlic	Kg	-36.03	-9.33	23.12	9.29	49.99	10.46

7. Global Commodity Prices

Table 7.1 Changes in Major Global Indices (percent)

Item/ Group	May-18		Apr-19		May-19	
	YoY	MoM	YoY	MoM	YoY	MoM
Food	5.1	0.7	-10.5	-0.3	-12.3	-1.2
Metals	21.9	0.4	-10.9	-0.6	-16.0	-5.4
Energy	42.6	6.8	-2.0	5.3	-10.8	-2.8
Agricultural	4.0	0.2	-9.1	0.3	-10.3	-1.1
Cotton	6.6	2.4	-5.4	4.1	-15.2	-8.1

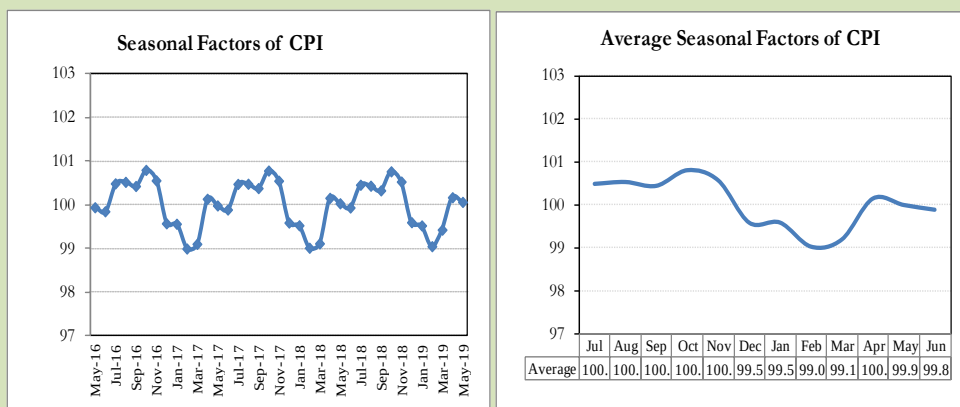
8. Seasonal Adjustment in CPI

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

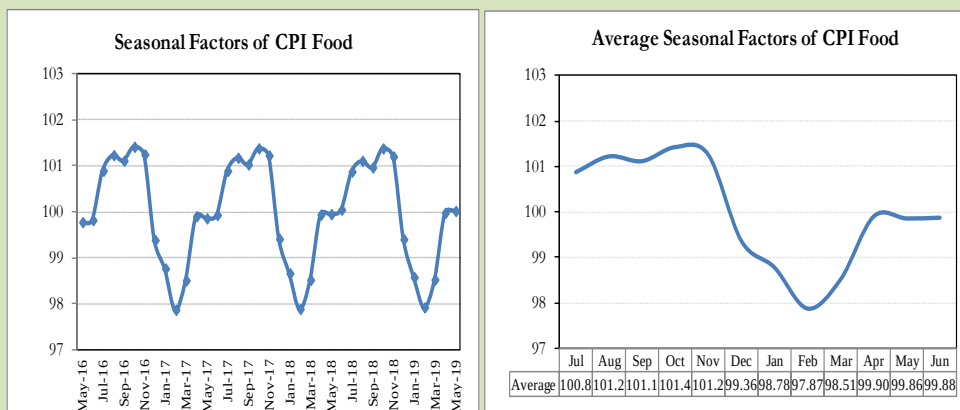
Figure 8.1 reveals that seasonality in CPI has been increasing over the period of last four years. Average seasonal factors reveal strong seasonality during the calendar year. There is an upward seasonality during the months from July to December and downward seasonality in the remaining months of the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

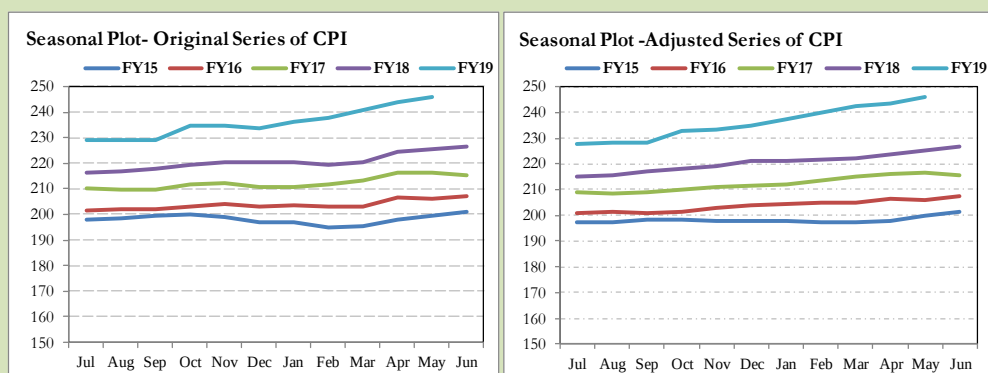
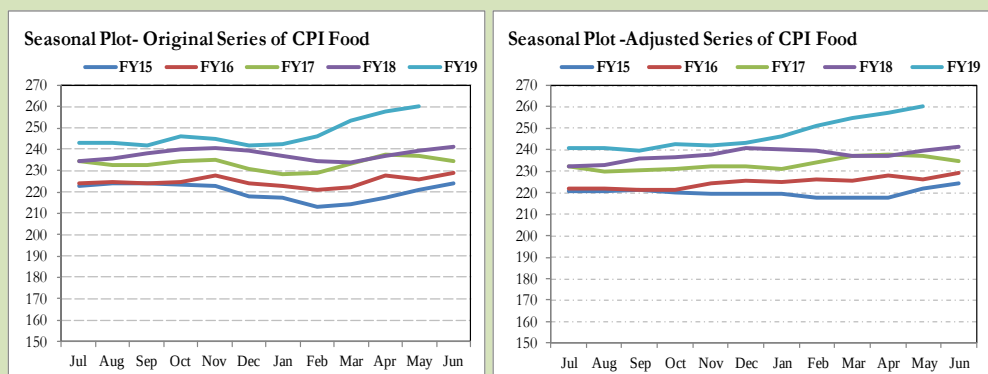


Fig. 8.4 Seasonal Plots of CPI (Food)



Seasonally adjusted CPI for May 2019 stood at 245.77 against 245.94 in original series showing decrease of 0.17 on account of adjustment of upward seasonality in May 2019.

Seasonally adjusted CPI food group for May 2019 stood at 260.21 against 260.15 in original series showing decrease of 0.06 on account of adjustment of downward seasonality in May 2019.

Month-on-month change of seasonally adjusted CPI series stood at 0.89% reflecting an increase during May 2019 over previous month and an increase of 0.78% in original series.

Month-on-month change of seasonally adjusted CPI food group series stood at 1.03% reflecting an increase during May 2019 over previous month and an increase of 1.08% 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 May 2019 (corresponding to the seasonally adjusted month-on-month rate) is 11.22 percent.

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

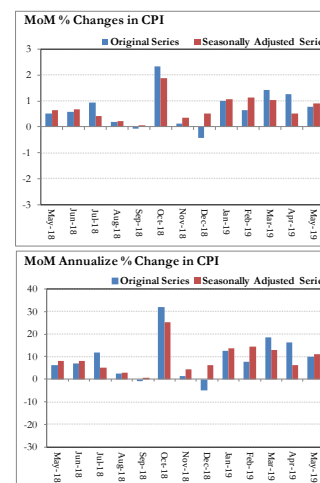
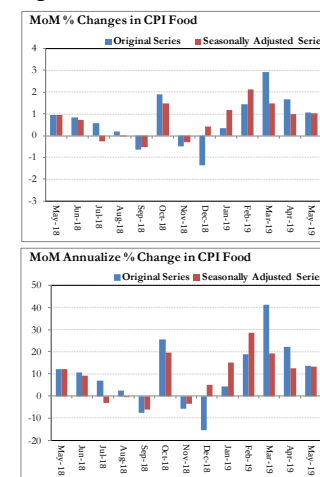


Fig. 8.6 Month-on-Month Percent Changes in CPI Food



Annexure A

Table A1: CPI Inflation by Groups (percent)							
	Weight	MoM change			YoY change		
		May-18	Apr-19	May-19	May-18	Apr-19	May-19
I. Food Group	37.5	1.0	1.7	1.1	1.0	8.6	8.7
Food & Non-Alcoholic Beverages	34.8	1.1	1.8	1.1	2.1	8.5	8.6
Alcoholic Beverages & Tobacco	1.4	-0.8	0.2	0.4	-17.8	12.1	13.4
Restaurant & Hotels	1.2	0.6	0.7	0.4	5.6	6.0	5.8
II. Non-Food Group	62.5	0.2	1.0	0.6	6.4	9.0	9.4
Clothing &	7.6	0.2	0.7	1.4	6.7	5.3	6.5
Housing, Water, Elect, Gas & other Fuels	29.4	0.1	0.9	0.0	5.5	10.1	10.0
Furnishing & Household Equip.	4.2	0.3	0.9	0.7	6.0	8.3	8.8
Health	2.2	0.3	1.1	0.6	5.2	8.4	8.7
Transport	7.2	0.9	1.6	2.8	7.2	14.5	16.7
Communication	3.2	0.0	0.0	0.1	0.6	7.5	7.6
Recreation & Culture	2.0	0.2	1.2	0.3	6.2	6.9	7.1
Education	3.9	0.1	1.8	0.0	13.1	5.6	5.5
Miscellaneous	2.8	0.1	0.7	0.3	7.3	7.9	8.1
Headline	100.0	0.5	1.3	0.8	4.2	8.8	9.1

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)	
		May-19	May-18	May-19	May-18	May-19	May-18	May-19	May-18	May-19	May-18
I. Food Group	8.7	126	127	41	7	39	39	27	39	19	42
Food & Non-Alcoholic Beverages	8.6	114	115	38	6	35	37	26	35	15	37
Alcoholic Beverages & Tobacco	13.4	6	6	3	1	1	0	0	0	2	5
Restaurant & Hotels	5.8	6	6	0	0	3	2	1	4	2	0
II. Non-Food Group	9.4	348	348	49	27	124	85	111	140	64	96
Clothing & Footwear	6.5	59	59	5	6	19	15	28	34	7	4
Housing, Water, Elect, Gas & other Fuels	10.0	36	36	12	1	5	8	11	16	8	11
Furnishing & Household Equip. Maintenance etc	8.8	69	69	1	0	29	11	30	33	9	25
Health	8.7	39	39	7	4	21	11	7	11	4	13
Transport	16.7	43	43	13	4	14	4	6	14	10	21
Communication	7.6	12	12	6	3	4	7	0	0	2	2
Recreation & Culture	7.1	39	39	4	4	16	16	9	11	10	8
Education	5.5	16	16	0	4	2	5	4	1	10	6
Miscellaneous	8.1	35	35	1	1	14	8	16	20	4	6
Overall	9.1	474	475	90	34	163	124	138	179	83	138

Note: Prices of 12 seasonal items were not reported during the month.

Table A3: Top and Bottom 15 Contributors to CPI Inflation (YoY) in May 2019					
Top 15 Contributors			YoY Change		Weighted Contribution
Items/ Contributors		Weights	May-18	May-19	
Ranked by Weighted Contribution					
1	House Rent	21.81	7.04	6.35	13.62
2	Gas	1.58	0.00	85.31	10.34
3	Motor Fuel	3.03	12.42	24.76	6.12
4	Fresh Fruits	1.86	-1.70	19.12	5.18
5	Meat	2.43	9.67	12.80	4.56
6	Electricity	4.40	0.00	8.48	4.32
7	Fresh Vegetables	1.75	-3.41	19.50	3.99
8	Transport Services	2.70	3.99	13.30	3.52
9	Onion	0.51	-0.17	77.53	3.42
10	Milk Fresh	6.68	3.58	3.54	3.26
11	Cigarettes	1.39	-20.25	14.87	3.10
12	Education	3.94	13.10	5.46	2.95
13	Sugar	1.04	-10.06	26.53	2.57
14	Wheat Flour	4.16	-0.94	5.42	2.26
15	Cotton Cloth	1.73	6.44	10.35	2.13
Total		59.03			71.35
Bottom 15 Contributors					
1	Chicken	1.36	21.04	-8.14	-1.25
2	Eggs	0.46	6.55	-10.52	-0.44
3	Betel Leaves & Nuts	0.02	218.64	-22.42	-0.20
4	Gram Whole	0.16	-5.06	-5.22	-0.11
5	Postal Services	0.07	9.18	0.17	0.00
6	Kerosene Oil	0.01	33.21	11.78	0.01
7	Medical Equipments	0.01	3.46	8.93	0.01
8	Motor Vehicle Tax	0.11	0.00	0.85	0.01
9	Wheat Product	0.10	-1.67	2.02	0.02
10	Mustard Oil	0.10	3.08	3.48	0.03
11	Blades	0.03	3.16	10.91	0.03
12	Besan	0.15	-9.82	1.87	0.04
13	Beans	0.03	4.30	11.81	0.04
14	Gur	0.02	-5.88	23.00	0.06
15	Cereals	0.16	3.59	3.19	0.06
Total		2.77			-1.70

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

<u>Top 15 Contributors</u>		<u>MoM Change</u>		Weighted Contribution	
Items/ Contributors	Weights	Apr-19	May-19		
Ranked by Weighted Contribution					
1	Fresh Fruits	1.86	24.21	9.03	28.75
2	Motor Fuel	3.03	4.22	6.00	18.76
3	Onion	0.51	4.87	27.19	17.99
4	Potatoes	0.45	6.08	25.80	8.62
5	Cotton Cloth	1.73	1.71	2.50	5.97
6	Sugar	1.04	6.76	3.44	4.37
7	Meat	2.43	1.15	1.00	4.26
8	Wheat Flour	4.16	-0.77	0.74	3.47
9	Tailoring	0.88	0.03	1.56	2.59
10	Transport Services	2.70	-0.27	0.77	2.48
11	Woolen Cloth	0.88	0.67	1.57	2.02
12	Beverages	1.20	0.75	1.30	1.93
13	Pulse Moong	0.23	2.67	5.46	1.84
14	Dopatta	0.44	0.83	2.29	1.46
15	Pulse Mash (Washed)	0.21	-0.37	5.93	1.43
Total		21.76			105.94
Bottom 15 Contributors					
1	Tomatoes	0.42	-41.42	-32.86	-17.02
2	Chicken	1.36	9.90	-5.33	-8.56
3	Fresh Vegetables	1.75	10.93	-0.58	-1.52
4	Personal Equipments	0.84	1.55	-0.51	-0.83
5	Eggs	0.46	-19.88	-1.09	-0.45
6	Fish	0.30	1.89	-1.11	-0.43
7	Gram Whole	0.16	-1.20	-1.30	-0.29
8	Besan	0.15	-0.45	-0.20	-0.04
9	Gas	1.58	0.00	0.00	0.00
10	Postal Services	0.07	0.00	0.00	0.00
11	Electricity	4.40	0.00	0.00	0.00
12	Water Supply	0.50	0.00	0.00	0.00
13	Marriage Hall Charges	0.08	0.95	0.00	0.00
14	Motor Vehicle Tax	0.11	0.85	0.00	0.00
15	News Papers	0.19	3.22	0.00	0.00
Total		12.36			-29.14

Table A3.2: Top Fifteen Contributors to CPI Inflation (YoY) in May 2019					
Items/ Contributors		Weights	YoY Change		Weighted Contribution
			May-18	May-19	
A. Ranked by Percentage Change					
1	Gas	1.58	0.00	85.31	10.34
2	Onion	0.51	-0.17	77.53	3.42
3	Tomatoes	0.42	-9.82	46.10	1.02
4	Pulse Moong	0.23	-11.47	33.66	0.83
5	Sugar	1.04	-10.06	26.53	2.57
6	Motor Fuel	3.03	12.42	24.76	6.12
7	Gur	0.02	-5.88	23.00	0.06
8	News Papers	0.19	12.12	19.63	0.38
9	Fresh Vegetables	1.75	-3.41	19.50	3.99
10	Fresh Fruits	1.86	-1.70	19.12	5.18
11	Spices	0.54	4.25	17.19	1.12
12	Honey	0.04	4.46	16.41	0.12
13	Cigarettes	1.39	-20.25	14.87	3.10
14	Transport Services	2.70	3.99	13.30	3.52
15	Meat	2.43	9.67	12.80	4.56
Total		17.75			46.34
B. Ranked by Weights					
1	House Rent	21.81	7.04	6.35	13.62
2	Milk Fresh	6.68	3.58	3.54	3.26
3	Electricity	4.40	0.00	8.48	4.32
4	Wheat Flour	4.16	-0.94	5.42	2.26
5	Education	3.94	13.10	5.46	2.95
6	Communication & Apparatus	3.15	0.27	7.88	1.58
7	Motor Fuel	3.03	12.42	24.76	6.12
8	Transport Services	2.70	3.99	13.30	3.52
9	Meat	2.43	9.67	12.80	4.56
10	Vegetable Ghee	2.07	1.79	7.79	1.14
11	Fresh Fruits	1.86	-1.70	19.12	5.18
12	Fresh Vegetables	1.75	-3.41	19.50	3.99
13	Cooking Oil	1.75	2.07	7.59	0.91
14	Cotton Cloth	1.73	6.44	10.35	2.13
15	Rice	1.58	9.35	5.49	0.82
Total		63.07			56.38
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 9.1 percent in May 2019.					

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

Table 1: Top 10 Contributors to CPI Food Inflation (2017) in May 2019					
Items/ Contributors		Weights	YoY Change		Weighted Contribution
			May-18	May-19	
A. Ranked by Weighted Contribution					
1	Fresh Fruits	1.86	-1.70	19.12	5.18
2	Meat	2.43	9.67	12.80	4.56
3	Fresh Vegetables	1.75	-3.41	19.50	3.99
4	Onion	0.51	-0.17	77.53	3.42
5	Milk Fresh	6.68	3.58	3.54	3.26
6	Cigarettes	1.39	-20.25	14.87	3.10
7	Sugar	1.04	-10.06	26.53	2.57
8	Wheat Flour	4.16	-0.94	5.42	2.26
9	Vegetable Ghee	2.07	1.79	7.79	1.14
10	Spices	0.54	4.25	17.19	1.12
Total		22.45			30.60
B. Ranked by Percentage Change					
1	Onion	0.51	-0.17	77.53	3.42
2	Tomatoes	0.42	-9.82	46.10	1.02
3	Pulse Moong	0.23	-11.47	33.66	0.83
4	Sugar	1.04	-10.06	26.53	2.57
5	Gur	0.02	-5.88	23.00	0.06
6	Fresh Vegetables	1.75	-3.41	19.50	3.99
7	Fresh Fruits	1.86	-1.70	19.12	5.18
8	Spices	0.54	4.25	17.19	1.12
9	Honey	0.04	4.46	16.41	0.12
10	Cigarettes	1.39	-20.25	14.87	3.10
Total		7.83			21.41
C. Ranked by Weights					
1	Milk Fresh	6.68	3.58	3.54	3.26
2	Wheat Flour	4.16	-0.94	5.42	2.26
3	Meat	2.43	9.67	12.80	4.56
4	Vegetable Ghee	2.07	1.79	7.79	1.14
5	Fresh Fruits	1.86	-1.70	19.12	5.18
6	Fresh Vegetables	1.75	-3.41	19.50	3.99
7	Cooking Oil	1.75	2.07	7.59	0.91
8	Rice	1.58	9.35	5.49	0.82
9	Cigarettes	1.39	-20.25	14.87	3.10
10	Chicken	1.36	21.04	-8.14	-1.25
Total		25.05			23.97
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 8.7 percent in May 2019.					

Table A3.4: Top Ten Contributors to CPI Non-food Inflation (YoY) in May 2019					
Items/ Contributors		Weights	YoY Change		Weighted Contribution
			May-18	May-19	
A. Ranked by Weighted Contribution					
1	House Rent	21.81	7.04	6.35	13.62
2	Gas	1.58	0.00	85.31	10.34
3	Motor Fuel	3.03	12.42	24.76	6.12
4	Electricity	4.40	0.00	8.48	4.32
5	Transport Services	2.70	3.99	13.30	3.52
6	Education	3.94	13.10	5.46	2.95
7	Cotton Cloth	1.73	6.44	10.35	2.13
8	Communication & Apparatus	3.15	0.27	7.88	1.58
9	Personal Equipments	0.84	9.75	10.78	1.46
10	Household Servent	1.04	6.65	9.14	1.26
Total		44.23			47.31
B. Ranked by Percentage Change					
1	Gas	1.58	0.00	85.31	10.34
2	Motor Fuel	3.03	12.42	24.76	6.12
3	News Papers	0.19	12.12	19.63	0.38
4	Transport Services	2.70	3.99	13.30	3.52
5	Motor Vehicle	0.66	7.09	12.67	0.77
6	Kerosene Oil	0.01	33.21	11.78	0.01
7	Utensils	0.32	7.79	11.09	0.43
8	Plastic Products	0.25	6.85	11.00	0.31
9	Motor Vehicle Accessories	0.24	2.37	10.99	0.28
10	Blades	0.03	3.16	10.91	0.03
Total		9.02			22.20
C. Ranked by Weights					
1	House Rent	21.81	7.04	6.35	13.62
2	Electricity	4.40	0.00	8.48	4.32
3	Education	3.94	13.10	5.46	2.95
4	Communication & Apparatus	3.15	0.27	7.88	1.58
5	Motor Fuel	3.03	12.42	24.76	6.12
6	Transport Services	2.70	3.99	13.30	3.52
7	Cotton Cloth	1.73	6.44	10.35	2.13
8	Gas	1.58	0.00	85.31	10.34
9	Footware	1.55	6.16	2.20	0.30
10	Personal Care	1.49	5.11	6.04	1.05
Total		45.39			45.94
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 9.4 percent in May 2019.					

Table A4: Distribution of Price Changes (YoY) - Selected CPI Items: May 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	Gram Whole Yellow Av.Qlty, Eggs Farm, Coconut Dry Av.Qlty.	Wheat Flour Avg. Qlty, Bread Plain Medium Size, Sweetmeat (Mixed), Biscuit-Bakery (Loose).	Rice Irri-6/9 (Sindh/Punj), Vegetable Ghee (Loose), Salt Powdered (National/Shan).	Muskmelon (Kharbooza), Onion, Cabbage, Watermelon (Turbooz), Garlic, Cardamom Small Av.Qlty, Tomatoes, Lemon, Bottlegourd, Pulse Moong (Washed), Pistachio Av.Qlty.
Alcoholic Beverages & Tobacco	Betel Nuts.			Cigarettes Capstan 20,S, Betel Leaves, Cigarettes Morven Gold 20,S, Cigarettes K-20,S, Cigarettes Gold Leaf 20,S.
Clothing & Footwear	Gents Shoe, Art 1109 Servis, Gents Sandal Bata, Gents Shoes Paul Bata, Ladies Spoung Chappal Bata, Ladies Sandal Bata, Gents Spoung Chappal Bata.	Tailoring Coat-Pant Suit, Linen Av.Qlty, Vest/Shameez (Women) Avg.Qlty, School Uni. Pant,Shirt Boys, Georgette Av.Qlty, Gloves Av.Qlty, School Uni.	Handkerchief Sup. Qlty Pak, Pullover Gents Oxford/Bon, Heavy Wt Suiting Law.Pur Av. Qlty, Pullover Ladies Oxford/Bon, Secondhand Sweater For Men.	Child Shoe Power Lite Bata, Long Cloth 57" Gul Ahmed/Al Karam, Shirting Av.Qlty., Tropical Suiting Law.Pur.
Housing, Water, Elect, Gas & other Fuels	Elect.Charges Upto 50 Units.	Firewood Whole, Water Charges Per House, Electrician Wage Rate(P/Pnt), Cement Blocks (6"X8"X12"), Cement (Local), Bajree, Elect.Charges 01 - 100 Units.	Unskilled Labour Wage Rat, Elect. Charges Overall/ Combined, Iron Bar (M.S. Bar) 1/2", Timber Shesham Log, Bricks (New) 1st Class, Plumber Wage Rate.	Gas Chrg All Over 500 Mmbtu, Gas Chrg Over 300 - 500 Mmbtu, Gas Chrg Overall/ Combined, Gas Chrg Over 200 - 300 Mmbtu, Gas Chrg Over 100 - 200 Mmbtu, Elect.Charges Above 1000 Units, Synthetic Enemal Robialac, Gas Chrg Up To 100 Cub Mmbtu, Synthetic Enemal Ici.
Furnishing & Household Equip. Maintenance etc		Towel(3'X2') Av. Qlty, Finis 500 Ml, Electric Blub Energy Saver 14 Watt, Match Box (Small), Mattress Single(4"Thick).	Sofa Set Wooden With Foam, Air Cooler Super Asia, S.Steel Deghchi Medium Size, Bulb Philips 100-Watt, Pedestal Fan 22" Super Qlty.	Tube Light Philips 40 Watt, Harpic, Tea Set Pak. China Wear 21 Pcs, Frying Pan Steel Avg. Qlty, Boot Polish Cherry/Kiwi 50 Ml, Sewing Machine (Singer), Non Stick Cooking Pan, Chair Shesham Wood, Robin Blue (35 Gms).
Health	Galxos-D (450 Gm), Vicks Vaporub/ Balm, Calcium Syrup Sandoz, Hydryllin Syrup 120 Ml.	Renitec Tab. 5 Mg., Sugar Test (Random/Fasting), Gripe-Water Woodward's, Ventolin Tab. 2Mg., O.R.S. (Nimcol).	Urine Test (Dr) Charges, Glycerine Small Bottle, Blood Test (Cp) Charges, Polyfax Eye Ointment.	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., Cac. 1000 Tab.
Transport	Air Fare Economy Class., Plateform Ticket, Motorcycle Yamaha 100 Cc, Full Tonga Charges.	Car Service Charges, Motor Cycle Hero 70 Cc, Motor Cycle Service Charges, Car Tax For 800 Cc To 1300 Cc.	Motorcycle Honda Cd-70, Auto Rickshaw Fare, Bicycle With Tyres & Tube, Car Toyota 1300 Cc, Tyre Car With Tube General.	Bus Fare Outside City (Non A/C), Car Honda Civic 1500 Cc, Cng, High Speed Diesel Hsd, Petrol Super, Bus Fare Max (Within City), Bus Fare Min (Within City), Bus Fare Outside City (A/C), Tyre Motor Cycle Without Tube.
Communication	Mobile Cell Charges, Postal Registration Charges, T.C.S. Ch. Min. Within Zone.	Mobile Set Nokia/Sony/Ericsson Av.Qlty, Telephone Set Av. Qlty, Fax Charges (Local).		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.	Urdu Book Class Ix/X (T.B.Board), Cinema A/C High Class, Cable Charges, Personnel Computer (Branded), English Book Ba/B.Sc.	Fountain Pen Hero/Wings/China, Maths Book Class Ix Or X, Maths Book Calss V (T.B.Board), Exercise Book Lined 80/10, Pencil Goldfish/Deer.	Daily "Nawa-E-Waqt", Daily "Jang", Weekly "Akhbar-E-Jahan", Pen Ink Dollor 57 Ml Bottle, Photostate Paper 70 Gm, Daily "Dawn", Urdu Book Ba/B.Sc, Ball Pen (Local).
Education	Coaching Fee For Class Ix/ X, Coaching Charges For Class Xi/ Xii Commerce Group.	Pvt School Fee Eng.Med (Class-I), Pvt School Fee Eng.Med (Class-X), Pvt School Fee Eng.	I.T. Tuition Fees.	Mba Tuition Fee, Govt. Med. College Fee Mbbs Ist Year, Pvt Eng.Colege Fee (Ist Year), Govt. University Fee Msc/ Ma, Govt. Engg. Coll. Fee Ist Year, Pvt Med.College Fee Mbbs(Ist Year).
Restaurant & Hotels		Chicken Biryani Full/Double, Bread Tandoori St. Size.	Cooked Dal (Av. Hotel), Tea Prepared (Ordinary), Cooked Mutton (Av. Hotel).	
Miscellaneous	Toothpaste Macleans 70 Gms.	Haircut Charges For Men, Hair Colour (Kala Kola), Artificial Jewellery Set, Hair Removing Cream (Eu-Cream).	Beauty Cream (Fair & Lovely), Wall Clock Quartz Av.Qlty.	Gold Tezabi 24 Ct, Toothpowder Dentonic 90 Gms, Blade Treet Ordinary (10), Toilet Soap Lux 95 Gms, Toilet Soap Safeguard Bath Size, Toothpast Med Size Colgate 70Gms.

Table A5: City- wise CPI Inflation by Income Groups, May 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	8.2	8.2	10.0	10.0	6.2	6.2	8.1	8.1	9.5	9.5	6.8	6.8
2 Islamabad	7.0	7.0	8.0	8.0	5.9	5.9	6.9	6.9	7.5	7.5	6.3	6.3
3 Lahore	5.8	5.8	8.1	8.1	2.8	2.8	5.8	5.8	7.8	7.8	3.5	3.5
4 Gujranwala	9.4	9.4	13.8	13.8	4.3	4.3	9.3	9.3	13.0	13.0	5.5	5.5
5 Sialkot	6.3	6.3	6.4	6.4	6.1	6.1	6.0	6.0	5.9	5.9	6.2	6.2
6 Faisalabad	7.4	7.4	8.5	8.5	6.2	6.2	7.5	7.5	8.3	8.3	6.7	6.7
7 Multan	7.3	7.3	9.2	9.2	5.2	5.2	7.5	7.5	9.1	9.1	5.8	5.8
8 Sargodha	7.4	7.4	7.3	7.3	7.5	7.5	7.3	7.3	6.4	6.4	8.2	8.2
9 Bahawalpur	5.0	5.0	5.9	5.9	4.1	4.1	4.8	4.8	5.4	5.4	4.3	4.3
10 Karachi	7.5	7.5	10.3	10.3	4.1	4.1	7.8	7.8	10.0	10.0	5.3	5.3
11 Hyderabad	8.5	8.5	8.4	8.4	8.7	8.7	8.7	8.7	8.2	8.2	9.3	9.3
12 Sukkur	6.5	6.5	6.8	6.8	6.3	6.3	6.5	6.5	6.8	6.8	6.2	6.2
13 Larkana	9.8	9.8	13.2	13.2	6.3	6.3	9.0	9.0	11.9	11.9	6.5	6.5
14 Peshawar	10.9	10.9	13.7	13.7	7.9	7.9	11.0	11.0	13.3	13.3	8.9	8.9
15 Bannu	8.9	8.9	9.7	9.7	8.1	8.1	9.2	9.2	9.3	9.3	9.1	9.1
16 Quetta	8.9	8.9	9.8	9.8	7.9	7.9	9.0	9.0	9.6	9.6	8.3	8.3
17 Khuzdar	7.7	7.7	9.9	9.9	5.1	5.1	7.4	7.4	10.2	10.2	4.5	4.5
	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	8.9	8.9	9.5	9.5	8.3	8.3	8.9	8.9	9.6	9.6	8.5	8.5
2 Islamabad	7.4	7.4	7.4	7.4	7.3	7.3	7.6	7.6	7.5	7.5	7.6	7.6
3 Lahore	6.3	6.3	7.6	7.6	5.0	5.0	6.2	6.2	7.4	7.4	5.2	5.2
4 Gujranwala	9.6	9.6	12.5	12.5	7.0	7.0	9.5	9.5	11.8	11.8	7.7	7.7
5 Sialkot	6.3	6.3	5.4	5.4	7.2	7.2	6.4	6.4	5.3	5.3	7.3	7.3
6 Faisalabad	7.9	7.9	8.1	8.1	7.8	7.8	8.0	8.0	8.1	8.1	7.9	7.9
7 Multan	7.8	7.8	8.8	8.8	6.9	6.9	7.9	7.9	8.8	8.8	7.2	7.2
8 Sargodha	7.8	7.8	6.5	6.5	8.8	8.8	7.7	7.7	6.2	6.2	8.8	8.8
9 Bahawalpur	5.4	5.4	5.4	5.4	5.5	5.5	5.2	5.2	5.0	5.0	5.3	5.3
10 Karachi	8.4	8.4	10.0	10.0	6.8	6.8	8.5	8.5	9.8	9.8	7.3	7.3
11 Hyderabad	9.6	9.6	8.3	8.3	10.9	10.9	9.7	9.7	7.8	7.8	11.3	11.3
12 Sukkur	6.1	6.1	5.7	5.7	6.6	6.6	5.6	5.6	4.7	4.7	6.2	6.2
13 Larkana	9.5	9.5	11.9	11.9	7.5	7.5	9.0	9.0	11.1	11.1	7.5	7.5
14 Peshawar	11.7	11.7	13.0	13.0	10.5	10.5	11.3	11.3	12.5	12.5	10.4	10.4
15 Bannu	9.4	9.4	9.5	9.5	9.3	9.3	9.1	9.1	9.3	9.3	9.0	9.0
16 Quetta	10.2	10.2	10.1	10.1	10.2	10.2	10.5	10.5	10.2	10.2	10.7	10.7
17 Khuzdar	6.3	6.3	8.8	8.8	3.9	3.9	6.2	6.2	8.7	8.7	4.1	4.1
	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	8.9	8.9	8.9	8.9	8.9	8.9	8.8	8.8	9.2	9.2	8.5	8.5
2 Islamabad	8.2	8.2	7.0	7.0	8.8	8.8	7.9	7.9	7.0	7.0	8.5	8.5
3 Lahore	7.0	7.0	7.1	7.1	7.0	7.0	6.6	6.6	7.3	7.3	6.1	6.1
4 Gujranwala	9.3	9.3	11.6	11.6	8.3	8.3	9.6	9.6	12.2	12.2	7.8	7.8
5 Sialkot	6.7	6.7	5.0	5.0	7.6	7.6	6.5	6.5	5.4	5.4	7.3	7.3
6 Faisalabad	8.7	8.7	7.2	7.2	9.4	9.4	8.2	8.2	8.0	8.0	8.4	8.4
7 Multan	7.7	7.7	8.3	8.3	7.5	7.5	7.8	7.8	8.7	8.7	7.3	7.3
8 Sargodha	8.6	8.6	6.5	6.5	9.5	9.5	8.0	8.0	6.5	6.5	8.9	8.9
9 Bahawalpur	5.4	5.4	4.7	4.7	5.8	5.8	5.4	5.4	5.3	5.3	5.5	5.5
10 Karachi	8.5	8.5	9.5	9.5	8.1	8.1	8.4	8.4	9.7	9.7	7.4	7.4
11 Hyderabad	11.2	11.2	7.7	7.7	13.1	13.1	10.1	10.1	8.0	8.0	11.7	11.7
12 Sukkur	6.5	6.5	4.4	4.4	7.5	7.5	6.4	6.4	5.4	5.4	7.0	7.0
13 Larkana	9.1	9.1	9.7	9.7	8.8	8.8	9.4	9.4	11.6	11.6	8.1	8.1
14 Peshawar	11.5	11.5	10.4	10.4	12.0	12.0	11.5	11.5	12.2	12.2	11.0	11.0
15 Bannu	9.6	9.6	8.6	8.6	10.1	10.1	9.3	9.3	9.2	9.2	9.3	9.3
16 Quetta	10.7	10.7	9.5	9.5	11.2	11.2	10.3	10.3	9.8	9.8	10.7	10.7
17 Khuzdar	7.2	7.2	9.4	9.4	6.1	6.1	7.1	7.1	9.3	9.3	5.6	5.6

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

City	High inflation cities			City	Low inflation cities		
	General	Food	Non-food		General	Food	Non-food
Wazirabad	13.1	14.4	12.3	Mianwali	9.0	9.4	8.7
Mardan	12.8	9.4	14.7	Rawalpindi	8.8	9.2	8.5
D. I. Khan	12.2	9.8	13.7	Sahiwal	8.7	10.6	7.6
Peshawar	11.5	12.2	11.0	Karachi	8.4	9.7	7.4
Abbottabad	11.1	13.7	9.5	Jhang	8.2	5.9	9.6
Bahawalnagar	11.0	9.2	12.1	Faisalabad	8.2	8.0	8.4
Jhelum	11.0	11.6	10.7	Sargodha	8.0	6.5	8.9
Turbat	10.4	6.3	12.5	Dadu	7.9	6.3	9.1
Quetta	10.3	9.8	10.7	Mingora	7.9	8.0	7.8
Hyderabad	10.1	8.0	11.7	Islamabad	7.9	7.0	8.5
Mirpukhas	9.6	11.4	8.4	Muzaffargarh	7.9	6.6	8.7
Gujranwala	9.6	12.2	7.8	Multan	7.8	8.7	7.3
Larkana	9.4	11.6	8.1	R. Y. Khan	7.6	9.7	6.3
Attock	9.3	9.1	9.4	Khuzdar	7.1	9.3	5.6
Bannu	9.3	9.2	9.3	D. G. Khan	6.7	8.4	5.7
				Loralai	6.6	9.3	5.1
				Lahore	6.6	7.3	6.1
				D. M. Jamali	6.6	6.8	6.5
				Sialkot	6.5	5.4	7.3
				Sukkur	6.4	5.4	7.0
				Gawadar	5.8	2.5	7.8
				Bahawalpur	5.4	5.3	5.5
				Nawabshah	5.0	4.8	5.2
				Vehari	4.8	5.6	4.2
				Mithi	2.6	1.8	3.0

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		
	May-18	Apr-19	May-19	May-18	Apr-19	May-19
<u>Up to Rs. 8000</u>						
General	0.4	1.1	0.8	2.6	7.6	8.0
Food	0.7	1.4	1.1	-0.1	8.7	9.2
Non-food	0.1	0.8	0.5	5.8	6.3	6.7
<u>Rs. 8001- 12000</u>						
General	0.5	1.1	0.8	3.0	7.5	7.9
Food	0.8	1.5	1.1	0.3	8.6	9.0
Non-food	0.2	0.8	0.5	5.8	6.5	6.8
<u>Rs. 12001- 18000</u>						
General	0.5	1.2	0.8	3.3	7.5	7.8
Food	0.9	1.6	1.0	0.4	8.7	8.9
Non-food	0.2	0.9	0.5	6.0	6.5	6.9
<u>Rs. 18001- 35000</u>						
General	0.5	1.2	0.8	3.6	9.1	9.3
Food	1.0	1.6	1.0	0.6	8.7	8.8
Non-food	0.2	0.9	0.6	6.1	9.4	9.8
<u>Above Rs. 35000</u>						
General	0.5	1.3	0.8	5.1	9.9	10.2
Food	1.1	1.8	1.1	1.9	8.5	8.4
Non-food	0.2	1.0	0.6	6.7	10.6	11.0
<u>All income groups</u>						
General	0.5	1.3	0.8	4.2	8.8	9.1
Food	1.0	1.7	1.1	1.0	8.6	8.7
Non-food	0.2	1.0	0.6	6.4	9.0	9.4

Table A8: SPI Item-wise Price Movements

Sr.No.	Items	Unit	Prices	Percentage change	
			May-19	YoY	MoM
1	Wheat	10Kg.	347.9	8.4	0.4
2	Wheat Flour Bag	10Kg.	395.2	11.6	1.7
3	Rice Basmati Broken	Kg.	79.3	6.2	0.6
4	Rice Irri-6/9	Kg.	58.6	10.7	0.4
5	Bread Plain Med.Size (340-400 Gm.)	Each	44.4	4.4	1.5
6	Beef	Kg.	408.0	12.7	0.9
7	Mutton	Kg.	844.8	10.0	1.5
8	Chicken Live (Farm)	Kg.	185.1	-1.6	-3.7
9	Milk Fresh	Litr	88.8	5.7	0.2
10	Curd	Kg.	104.4	3.2	0.4
11	Milk Powdered Nido	500G	411.1	6.9	0.3
12	Egg Hen (Farm)	Doz.	85.5	-6.2	-0.1
13	Mustard Oil	Kg.	194.3	5.3	0.3
14	Cooking Oil (Tin)	2.5Ltr	522.9	9.7	0.3
15	Veg. Ghee (Tin)	2.5Kg.	501.5	6.6	0.5
16	Veg.Ghee Loose	Kg.	161.0	8.5	0.4
17	Bananas	Doz.	115.8	3.2	23.2
18	Masoor Pulse Washed	Kg.	123.0	9.3	0.0
19	Moong Pulse Washed	Kg.	154.7	35.8	6.8
20	Mash Pulse Washed	Kg.	164.2	11.3	7.6
21	Gram Pulse Washed	Kg.	127.0	11.7	1.6
22	Potatoes	Kg.	26.8	-1.0	20.8
23	Onions	Kg.	55.8	93.6	17.3
24	Tomatoes	Kg.	47.8	52.5	-30.4
25	Sugar	Kg.	68.0	29.2	3.6
26	Gur	Kg.	97.5	24.0	4.3
27	Salt Powdered Loose (Lahori)	Kg.	12.4	7.8	0.0
28	Red Chillies Powder Loose	Kg.	349.4	24.4	-0.2
29	Garlic	Kg.	207.0	58.6	7.1
30	Tea (Yellow Lable 200 Gm.)	200Gm.	219.5	10.2	0.0
31	Cooked Beef Plate	Each	121.7	9.9	1.8
32	Cooked Dal Plate	Each	64.2	4.6	0.1
33	Tea Prepared (Sada)	Cup	23.9	11.1	0.6
34	Cigarettes K-2 (20'S)	20'S	59.7	16.7	0.0
35	Long Cloth (Coarse Latha)	Mtr.	288.7	28.6	1.5
36	Shirting	Mtr.	188.9	6.8	2.0
37	Lawn	Mtr.	332.7	22.0	0.0
38	Georgette (Voil Printed)	Mtr.	139.9	6.4	1.0
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	145.1	12.7	0.0
44	Kerosene	Litr	129.0	10.2	2.9
45	Firewood	40Kg	645.8	3.1	0.0
46	Energy Savor 14 Watt	Each	171.8	0.3	0.0
47	Washing Soap (200-250 Gm.)	Cake	31.4	13.2	0.0
48	Match Box	Each	2.5	7.4	0.0
49	Petrol	Litr	107.4	21.3	7.5
50	Diesel	Litr	122.2	22.7	3.2
51	L.P.G.(11 Kg Cylander.)	Each	1296.2	6.0	-0.1
52	Tele. Local Call	Call	4.7	18.0	0.0
53	Bath Soap Lifebouy (Standard)	Cake	40.5	3.3	0.0
Maximum				93.6	23.2
Median				9.3	0.4
Minimum				-6.2	-30.4

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

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

Items and specification	Weights	Index		
		May-18	Apr-19	May-19
General	100.00	225.40	244.03	245.94
Food & Non-Alcoholic Beverages.	34.83	234.40	251.63	254.52
1 Wheat	0.35	192.37	208.40	206.61
2 Wheat Flour	4.16	206.09	215.66	217.25
3 Wheat Product	0.10	212.42	215.88	216.71
4 Besan	0.15	268.40	273.96	273.41
5 Rice	1.58	194.33	203.89	204.99
6 Cereals	0.16	264.30	271.41	272.73
7 Bakery & Confectionary	1.16	225.94	234.69	235.10
8 Nimco	0.46	259.43	264.08	264.45
9 Meat	2.43	301.28	336.48	339.83
10 Chicken	1.36	232.54	225.63	213.60
11 Fish	0.30	228.10	246.88	244.13
12 Milk Fresh	6.68	283.40	293.07	293.43
13 Milk Product	0.63	275.28	286.28	287.09
14 Milk Powder	0.11	243.79	259.07	259.46
15 Eggs	0.46	189.94	171.82	169.95
16 Mustard Oil	0.10	164.68	169.31	170.41
17 Cooking Oil	1.75	140.71	151.17	151.39
18 Vegetable Ghee	2.07	145.16	156.14	156.47
19 Dry Fruits	0.25	289.34	311.07	313.89
20 Fresh Fruits	1.86	298.56	326.18	355.63
21 Pulse Masoor	0.27	158.06	166.91	167.55
22 Pulse Moong	0.23	217.50	275.65	290.70
23 Pulse Mash (Washed)	0.21	211.12	219.98	233.03
24 Pulse Gram	0.24	255.84	282.30	285.07
25 Gram Whole	0.16	274.09	263.21	259.79
26 Beans	0.03	244.28	268.50	273.13
27 Potatoes	0.45	174.73	143.36	180.34
28 Onion	0.51	177.74	248.09	315.54
29 Tomatoes	0.42	108.95	237.08	159.18
30 Fresh Vegetables	1.75	239.66	288.05	286.39
31 Sugar	1.04	190.33	232.83	240.83
32 Gur	0.02	243.56	287.70	299.59
33 Honey	0.04	346.18	399.03	403.00
34 Sweet Meet	0.25	270.67	279.53	283.12
35 Beverages	1.20	231.59	235.98	239.05
36 Jam, Tomato Ketchup & Pickle	0.25	230.45	241.85	243.64
37 Condiments	0.27	284.34	299.50	300.66
38 Spices	0.54	246.93	286.08	289.38
39 Tea	0.84	302.62	320.98	321.62
Alcoholic Beverages, Tobacco	1.41	315.26	356.08	357.39
40 Cigarettes	1.39	307.50	352.20	353.23
41 Betel Leaves & Nuts	0.02	786.31	591.41	610.05
Clothing & Footwear	7.57	252.58	265.36	268.98
42 Cotton Cloth	1.73	244.99	263.74	270.34
43 Woolen Cloth	0.88	268.37	280.61	285.01
44 Ready Made Garments	0.97	262.95	272.89	275.68
45 Woolen Readymade Garments	0.40	266.50	289.31	289.77
46 Hosiery	0.51	265.27	279.59	281.08
47 Dopatta	0.44	261.94	275.65	281.95
48 Cleaning & Laundering	0.21	290.46	305.07	307.61

Table A10: Consumer Price Index Numbers by Major Groups and Composite Commodities					
Items and specification		Weights	Index		
			May-18	Apr-19	May-19
49	Tailoring	0.88	344.90	359.16	364.75
50	Footware	1.55	177.43	181.19	181.34
Housing, Water, Elect, Gas & Other Fuel		29.41	207.58	228.21	228.25
51	House Rent	21.81	201.96	214.78	214.78
52	Construction Input Item	0.56	270.82	296.83	298.32
53	Construction Wage Rate	0.33	264.70	282.22	282.74
54	Water Supply	0.50	189.09	195.29	195.29
55	Electricity	4.40	238.10	258.28	258.28
56	Gas	1.58	158.08	292.94	292.94
57	Kerosene Oil	0.01	264.32	284.86	295.47
58	Fire Wood Whole	0.23	297.93	307.99	308.96
Furnished H.Hold Equip.& Maint. Etc		4.21	239.94	259.19	260.95
59	Furniture	0.33	235.84	255.11	256.83
60	Household Textile	0.65	243.30	253.98	255.72
61	Household Equipment	0.59	189.68	202.00	205.33
62	Utensils	0.32	249.89	275.24	277.60
63	Plastic Products	0.25	225.28	248.20	250.05
64	Washing Soap & Detergent	0.79	239.22	263.63	264.00
65	Sewing Needle & Dry Cell	0.15	219.11	232.24	232.84
66	Household Servant	1.04	270.32	292.98	295.04
67	Marriage Hall Charges	0.08	260.28	279.97	279.97
Health		2.19	223.74	241.75	243.18
68	Drug Medicine	1.27	189.28	206.92	208.87
69	Medical Equipment	0.01	259.89	281.94	283.11
70	Doctor (MBBS) Clinic Fee	0.59	302.67	324.35	324.35
71	Medical Test	0.32	213.70	226.33	228.31
Transport		7.20	189.16	214.61	220.70
72	Motor Vehicle	0.66	187.54	207.61	211.31
73	Motor Vehicle Accessories	0.24	216.95	239.38	240.79
74	Motor Fuel	3.03	167.71	197.39	209.23
75	Mechanical Service	0.46	242.09	256.98	258.15
76	Motor Vehicle Tax	0.11	210.18	211.97	211.97
77	Transport Services	2.70	201.31	226.34	228.09
Communication		3.22	133.67	143.65	143.78
78	Postal Services	0.07	272.18	272.63	272.63
79	Communication & Apparatus	3.15	130.77	140.94	141.07
Recreation & Culture		2.02	208.32	222.37	223.08
80	Recreation & Culture	0.86	134.12	138.16	138.17
81	Text Books	0.57	304.43	321.86	322.93
82	News Papers	0.19	202.94	242.78	242.78
83	Stationery	0.40	234.29	252.72	254.76
Education		3.94	281.88	297.27	297.27
84	Education	3.94	281.88	297.27	297.27
Restaurants And Hotels		1.23	292.77	308.62	309.79
85	Ready Made Food	1.23	292.77	308.62	309.79
Miscellaneous Goods And Services		2.76	263.91	284.46	285.37
86	Personal Care	1.49	238.37	251.10	252.77
87	Cosmetics	0.39	223.29	237.40	241.15
88	Blades	0.03	204.05	221.15	226.31
89	Personal Equipments	0.84	329.93	367.39	365.51

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

Items and Specifications	Index		
	May-18	Apr-19	May-19
General	230.98	259.57	263.29
Agriculture Forestry & Fishery	263.65	287.68	294.65
1 Wheat	193.89	211.18	212.97
2 Maize	220.29	246.66	250.97
3 Rice	178.91	203.63	206.06
4 Sorghum/Jowar	292.47	447.93	465.05
5 Millet/Bajra	210.95	260.31	266.63
6 Vegetables	230.36	356.37	320.49
7 Fresh Fruits	358.47	355.25	428.74
8 Dry Fruits	283.68	282.36	287.30
9 Cotton Seeds	273.24	272.29	281.20
10 Other Oil Seeds	186.14	187.39	189.46
11 Edible Roots/ Potatoes	161.85	126.99	184.30
12 Stimulant And Spice Crops	282.74	340.75	344.50
13 Pulses	239.75	249.67	254.02
14 Sugar Crops	257.62	349.69	349.69
15 Fibre Crops	239.28	278.87	280.99
16 Unmanufactured Tobacco	309.16	325.04	326.11
17 Poultry	249.20	246.03	236.49
18 Milk From Bovine Animals	283.49	290.78	290.78
19 Eggs	194.33	163.90	158.30
20 Raw Animal Material/Wool	176.72	190.05	190.05
21 Hides And Fur Skins, Raw	94.24	92.86	93.37
22 Fuel Wood In Logs	283.56	293.83	296.01
23 Fishes Live Fresh Or Chilled	451.10	465.14	505.63
Ores/Minerals, Gas & Elect.	242.99	290.77	290.68
24 Coal Not Agglomerated	155.29	155.29	155.29
25 Natural Gas Liquefied	211.12	315.07	314.87
26 Salt & Pure Sodium Chloride	269.74	290.99	290.99
27 Electrical Energy	288.00	283.90	283.90
Food, Beverages, Tobacco, Textiles	235.86	265.89	268.16
28 Meat Of Animals	325.47	353.98	360.72
29 Vegetables & Fruit Juices	226.66	231.57	242.67
30 Dried Fruits & Nuts	295.32	333.48	336.68
31 Fruit Juices	185.23	192.06	196.95
32 Vegetable Oil Refined	158.97	168.32	168.00
33 Vegetable Ghee	129.83	139.82	139.59
34 Oil Cakes	232.12	250.04	251.81
35 Processed Liquid Milk	289.45	311.00	308.71
36 Milk And Cream In Solid Form	223.82	242.85	242.85
37 Ice Cream	266.02	287.85	287.85
38 Dairy Products N.E.C	278.71	298.79	304.88
39 Wheat Flour	188.12	196.69	197.89
40 Other Cereal Flour	215.85	230.69	230.34
41 Sugar Refined	196.39	248.79	259.51
42 Chocolate	100.00	100.00	100.00
43 Sugar Confectionary	127.55	128.15	128.15
44 Coffee And Tea	274.13	289.70	292.34
45 Spices	202.25	251.98	252.03
46 Other Food Products	294.50	319.77	320.27
47 Mineral Water	211.50	216.02	217.45
48 Beverages	173.22	178.18	178.58
49 Tobacco Products	318.37	393.80	393.80
50 Cotton Yarn	236.05	283.63	288.89
51 Nylon Yarn	143.99	143.99	143.99
52 Blended Yarn	195.38	207.37	207.84
53 Woven Fabrics	321.49	344.94	344.94
54 Cotton Fabrics	219.99	226.25	229.16
55 Other Fabrics	227.85	235.88	235.88

Table A11: Wholesale Price Index Numbers by Major Groups and Composite Commodities				
Items and Specifications		Index		
		May-18	Apr-19	May-19
56	Silk And Rayon Fabrics	188.95	194.81	195.54
57	Towels	287.65	308.50	308.50
58	Blankets	265.03	277.52	277.52
59	Bed Sheets	256.87	269.00	269.00
60	Quilts	222.32	232.74	232.74
61	Woolen Carpets	196.43	199.40	199.40
62	Synthetic Carpets	130.95	134.75	134.75
63	Hosiery Products	250.36	273.87	273.87
64	Ready Made Garments	201.16	228.07	228.07
65	Leather With Out Hairs	212.68	229.55	229.55
66	Other Leather N.E.C	207.02	658.87	658.87
67	Footwear's	168.09	168.09	168.09
Other Transportable Goods		198.63	227.00	232.38
68	Timber	237.00	244.62	245.35
69	Printing Paper	170.68	174.76	174.76
70	Hard Board	260.42	291.67	291.67
71	Coke	163.45	163.45	163.45
72	Motor Sprit	148.14	167.06	183.16
73	Diesel Oil	211.29	249.21	264.15
74	Kerosene Oil	212.90	238.48	258.40
75	Furnace Oil	148.26	185.83	188.96
76	Mobil Oil	201.08	221.27	224.15
77	Chemicals	191.65	221.50	222.74
78	Dying Materials	146.55	155.94	155.94
79	Fertilizers	228.94	268.91	268.58
80	Pesticides	312.26	316.64	325.17
81	Insecticides	142.19	150.13	150.13
82	Paints & Varnishes	301.12	369.27	369.27
83	Medicines	177.04	194.23	196.13
84	Soaps & Detergent	190.80	202.19	202.35
85	Auto Tyres	177.11	204.36	204.36
86	Plastic Products	240.04	246.72	246.72
87	Glass Sheets	302.27	337.30	337.30
88	Other Glass Articles	318.10	331.31	331.31
89	Ceramics And Sanitary	236.41	252.16	252.16
90	Bricks Blocks And Tiles	221.69	226.38	227.67
91	Cement	223.54	235.80	232.74
92	Bed Foams	175.33	181.83	181.83
93	Matches	171.36	172.57	172.57
Metal Product Machinery & Equip		183.47	194.35	194.68
94	Pig Iron	128.97	128.97	128.97
95	Steel Bars & Sheets	163.92	178.62	180.64
96	Pipe Fittings	215.66	251.44	251.44
97	Steel Products	177.24	189.42	189.42
98	Engines And Motors	116.98	116.98	116.98
99	Vacuum Pumps	123.69	123.69	123.69
100	Air Conditioners	203.80	218.02	218.02
101	Cultivators	190.66	190.66	190.66
102	Chuff Cutter	153.46	153.46	153.46
103	Tractors	201.75	226.93	226.93
104	Lathe Machines	241.06	299.21	299.21
105	Concrete Mixer	138.83	138.83	138.83
106	Refrige,Wash& Sew Mach, Iron,Fan	226.35	251.74	251.74
107	Electrical Wires	208.22	212.00	212.00
108	Lighting Equipments	174.04	175.37	175.37
109	Radio And Television	140.42	150.87	150.87
110	Motor Vehicles	211.00	235.59	235.59
111	Motor Cycles	133.88	160.54	160.54
112	Bicycles	187.65	194.31	194.31

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

Period		CPI			WPI			SPI *
		Overall	Food	Non-food	Overall	Food	Non-Food	
2008-09		117.03	123.11	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
2017	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
	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

*: all groups combined

Table A13: International Commodity Prices/Indices

	Feb-19	Mar-19	Apr-19	May-19
Energy				
Crude Oil (US\$ per barrel) *	61.1	63.8	68.6	66.8
Energy Index (2010 = 100)	77.4	80.0	84.2	81.8
Food				
Rice (\$/MT)	408.0	406.0	413.0	409.0
Wheat (\$/MT)	219.0	205.8	199.5	199.5
Sugar (US cent/ pound)^	0.29	0.28	0.28	0.27
Palm Oil (\$/MT)	603.0	573.0	588.5	563.2
Soybean Oil (\$/MT)	772.8	750.3	733.8	742.5
Non-Food Non-Energy				
Cotton Outlook 'A' Index #^	1.8	1.8	1.9	1.8
Metal Price Index (2010 = 100)	84.7	86.2	85.6	81.0
Copper (\$/MT)	6,300.5	6,439.5	6,438.4	6,017.9
Aluminum (\$/MT)	1,863.0	1,871.2	1,845.4	1,781.3
Iron Ore (\$ cents/dry MT)	88.2	86.5	93.7	100.2
Tin (\$/MT)	21,264.0	21,393.4	20,604.3	19,523.9
Nickel (\$/MT)	12,685.2	13,026.3	12,772.8	12,016.3
Zinc (\$/MT)	2,707.2	2,850.6	2,932.7	2,742.8
Lead (\$/MT)	2,062.8	2,046.5	1,939.0	1,815.2
Uranium (\$/MT)@	28.0	25.3	25.2	24.1
DAP (\$/MT)	357.4	335.0	323.8	313.4
Urea (\$/MT)	250.6	247.5	247.5	247.5

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	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	229.14
Oct	199.81	203.03	211.57	219.61	234.49
Nov	198.79	204.22	212.01	220.42	234.75
Dec	196.79	203.06	210.57	220.20	233.78
Jan	196.95	203.49	210.94	220.27	236.11
Feb	195.13	202.98	211.54	219.58	237.61
Mar	195.57	203.28	213.32	220.25	240.98
Apr	198.16	206.43	216.30	224.25	244.03
May	199.66	205.99	216.33	225.40	245.94
Jun	200.89	207.30	215.45	226.68	
Seasonally Adjusted Series					
Jul	197.10	200.78	209.05	215.16	227.75
Aug	197.48	201.13	208.36	215.57	228.27
Sep	198.32	201.07	208.98	217.15	228.38
Oct	198.15	201.38	209.89	217.90	232.70
Nov	197.61	203.06	210.83	219.21	233.51
Dec	197.73	203.98	211.46	221.09	234.71
Jan	197.68	204.31	211.86	221.30	237.23
Feb	197.16	205.06	213.68	221.76	239.88
Mar	197.32	205.11	215.24	222.21	242.35
Apr	197.97	206.20	216.00	223.89	243.61
May	199.89	206.10	216.36	225.32	245.77
Jun	201.28	207.60	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	241.65
Oct	223.74	224.86	234.68	239.89	246.27
Nov	222.74	227.55	235.17	240.79	245.08
Dec	218.08	223.90	230.69	239.43	241.70
Jan	217.10	222.58	228.45	236.92	242.53
Feb	213.15	221.07	229.19	234.31	246.03
Mar	214.25	222.25	233.47	233.67	253.20
Apr	217.26	227.53	237.50	237.08	257.44
May	221.22	225.84	237.01	239.36	260.21
Jun	223.84	228.95	234.37	241.37	
Seasonally Adjusted Series					
Jul	220.91	222.18	232.61	232.39	240.62
Aug	221.06	222.02	229.65	232.64	240.58
Sep	221.24	221.20	230.24	235.99	239.33
Oct	220.40	221.58	231.40	236.62	242.91
Nov	219.71	224.65	232.27	237.87	242.16
Dec	219.67	225.41	232.11	240.85	243.15
Jan	219.32	225.10	231.30	240.13	246.02
Feb	217.94	225.95	234.18	239.36	251.25
Mar	217.52	225.63	237.00	237.17	254.98
Apr	217.63	227.85	237.72	237.21	257.49
May	221.94	226.34	237.34	239.47	260.15
Jun	224.52	229.36	234.52	241.25	

Table 16: CPI Monthly & Average Seasonal Factors

Period	FY15	FY16	FY17	FY18	FY19	Average
Jul	100.48	100.49	100.49	100.48	100.46	100.48
Aug	100.62	100.56	100.53	100.48	100.44	100.52
Sep	100.54	100.48	100.43	100.38	100.33	100.44
Oct	100.84	100.82	100.80	100.79	100.77	100.80
Nov	100.60	100.57	100.56	100.55	100.53	100.56
Dec	99.52	99.55	99.58	99.60	99.60	99.57
Jan	99.63	99.60	99.57	99.53	99.53	99.57
Feb	98.97	98.99	99.00	99.02	99.05	99.01
Mar	99.11	99.11	99.11	99.12	99.43	99.18
Apr	100.10	100.11	100.14	100.16	100.17	100.14
May	99.89	99.95	99.99	100.04	100.07	99.98
Jun	99.81	99.85	99.89	99.94		99.87

Table 17: CPI Food Monthly & Average Seasonal Factors

Period	FY15	FY16	FY17	FY18	FY19	Average
Jul	100.85	100.88	100.90	100.89	100.88	100.88
Aug	101.35	101.28	101.24	101.18	101.11	101.23
Sep	101.30	101.21	101.11	101.03	100.97	101.13
Oct	101.52	101.48	101.42	101.38	101.38	101.44
Nov	101.38	101.29	101.25	101.23	101.21	101.27
Dec	99.28	99.33	99.39	99.41	99.41	99.36
Jan	98.99	98.88	98.77	98.67	98.58	98.78
Feb	97.80	97.84	97.87	97.89	97.92	97.87
Mar	98.50	98.50	98.51	98.52	98.53	98.51
Apr	99.83	99.86	99.91	99.94	99.98	99.90
May	99.68	99.78	99.86	99.95	100.02	99.86
Jun	99.70	99.82	99.93	100.05		99.88

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	-0.06
Oct	0.21	0.49	0.81	0.75	2.33
Nov	-0.51	0.59	0.21	0.37	0.11
Dec	-1.01	-0.57	-0.68	-0.10	-0.41
Jan	0.08	0.21	0.18	0.03	1.00
Feb	-0.92	-0.25	0.28	-0.31	0.64
Mar	0.23	0.15	0.84	0.31	1.42
Apr	1.32	1.55	1.40	1.82	1.27
May	0.76	-0.21	0.01	0.51	0.78
Jun	0.62	0.64	-0.41	0.57	
Seasonally Adjusted Series					
Jul	0.95	-0.25	0.70	-0.24	0.41
Aug	0.20	0.17	-0.33	0.19	0.23
Sep	0.42	-0.03	0.30	0.73	0.05
Oct	-0.08	0.15	0.44	0.35	1.89
Nov	-0.28	0.84	0.45	0.60	0.34
Dec	0.06	0.45	0.30	0.86	0.52
Jan	-0.02	0.16	0.19	0.10	1.07
Feb	-0.27	0.37	0.86	0.20	1.12
Mar	0.08	0.02	0.73	0.20	1.03
Apr	0.33	0.53	0.35	0.76	0.52
May	0.97	-0.05	0.17	0.64	0.89
Jun	0.70	0.73	-0.31	0.66	

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	-0.66
Oct	-0.17	0.44	0.81	0.61	1.91
Nov	-0.45	1.20	0.21	0.37	-0.48
Dec	-2.09	-1.61	-1.90	-0.56	-1.38
Jan	-0.45	-0.59	-0.97	-1.05	0.34
Feb	-1.82	-0.68	0.32	-1.11	1.44
Mar	0.52	0.54	1.87	-0.27	2.91
Apr	1.41	2.38	1.73	1.46	1.67
May	1.82	-0.74	-0.21	0.96	1.08
Jun	1.18	1.38	-1.11	0.84	
Seasonally Adjusted Series					
Jul	1.34	-1.04	1.42	-0.91	-0.26
Aug	0.07	-0.07	-1.27	0.10	-0.02
Sep	0.08	-0.37	0.26	1.44	-0.52
Oct	-0.38	0.17	0.51	0.26	1.50
Nov	-0.31	1.39	0.37	0.53	-0.31
Dec	-0.02	0.34	-0.07	1.25	0.41
Jan	-0.16	-0.14	-0.35	-0.30	1.18
Feb	-0.63	0.38	1.24	-0.32	2.12
Mar	-0.19	-0.14	1.20	-0.91	1.48
Apr	0.05	0.98	0.31	0.02	0.99
May	1.98	-0.66	-0.16	0.95	1.03
Jun	1.16	1.33	-1.19	0.74	

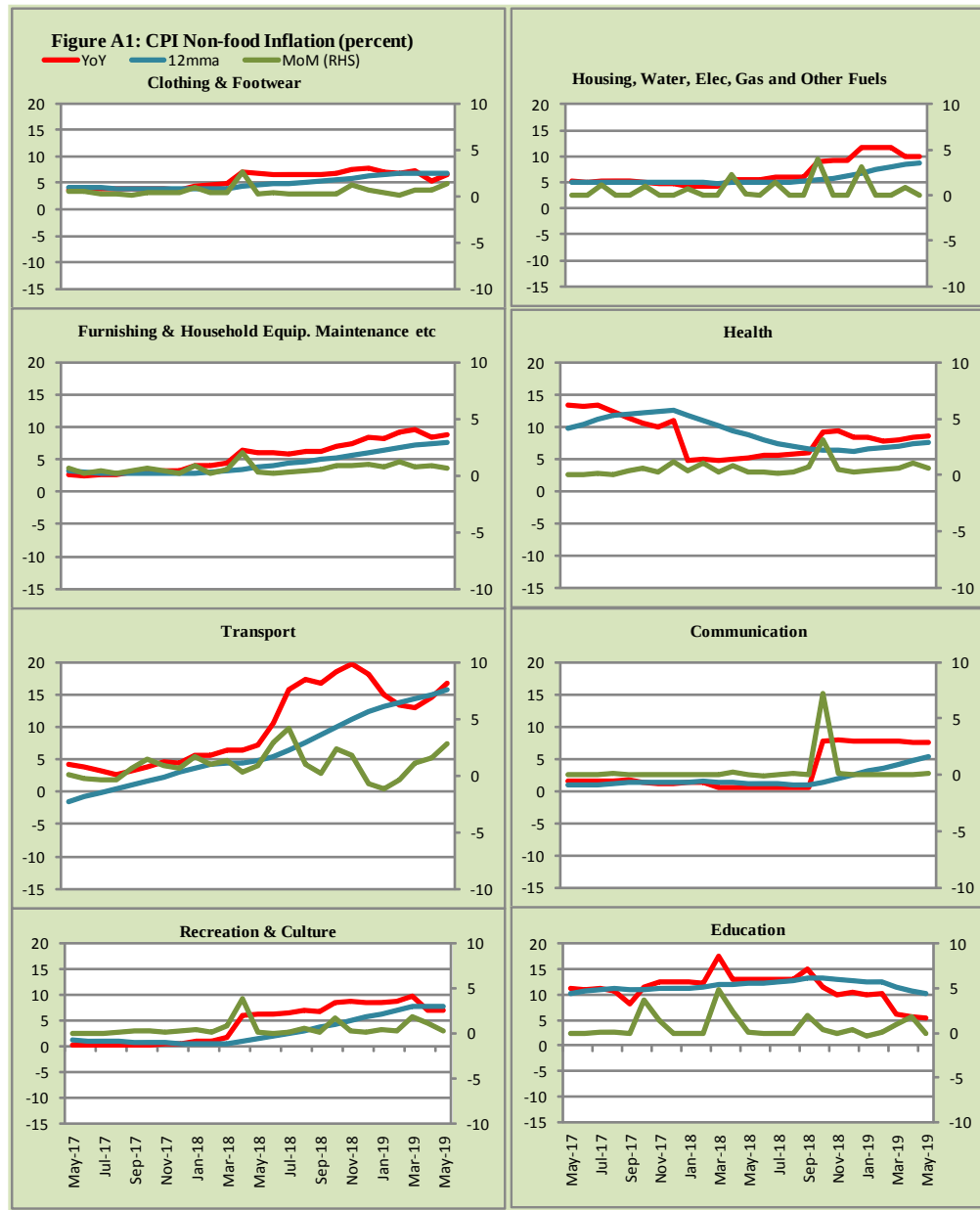


Figure A2: Frequency Distribution of Price Changes of CPI Items, May 2019

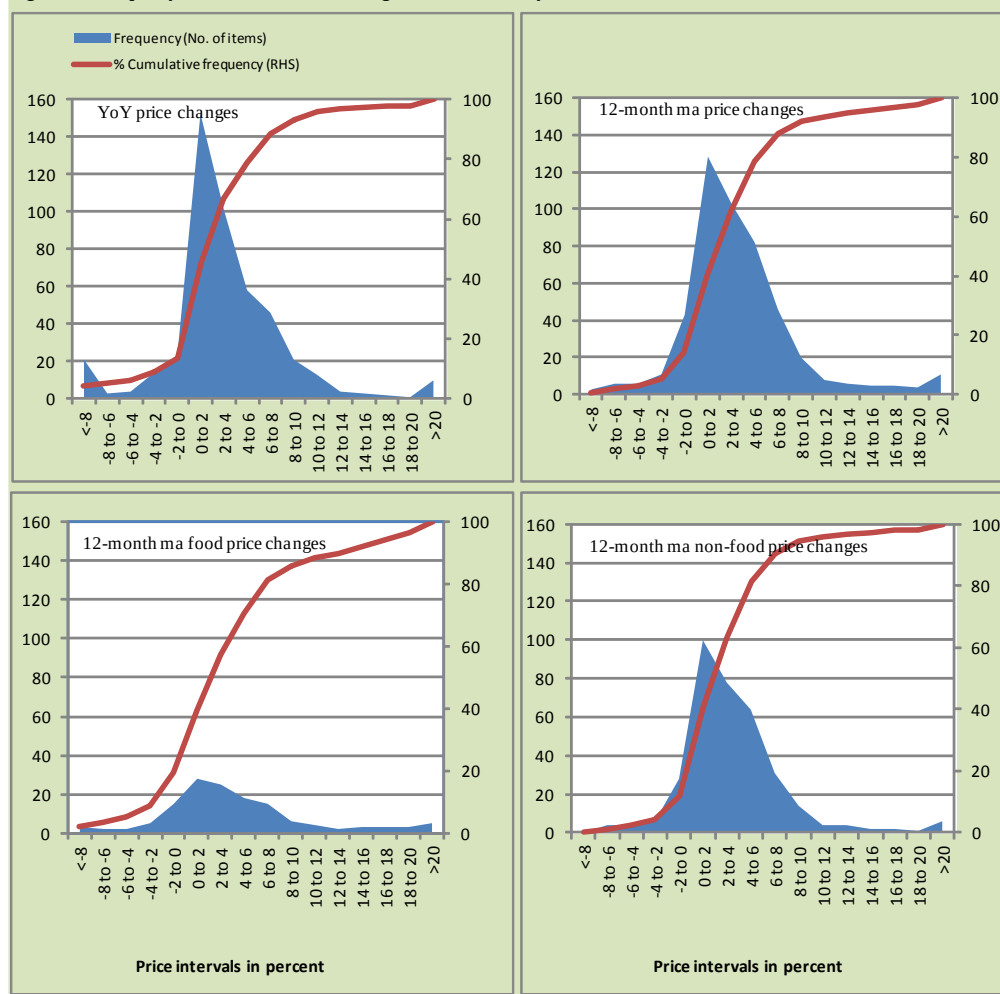


Figure A3: Frequency Distribution of Price Changes of WPI Commodities, May 2019

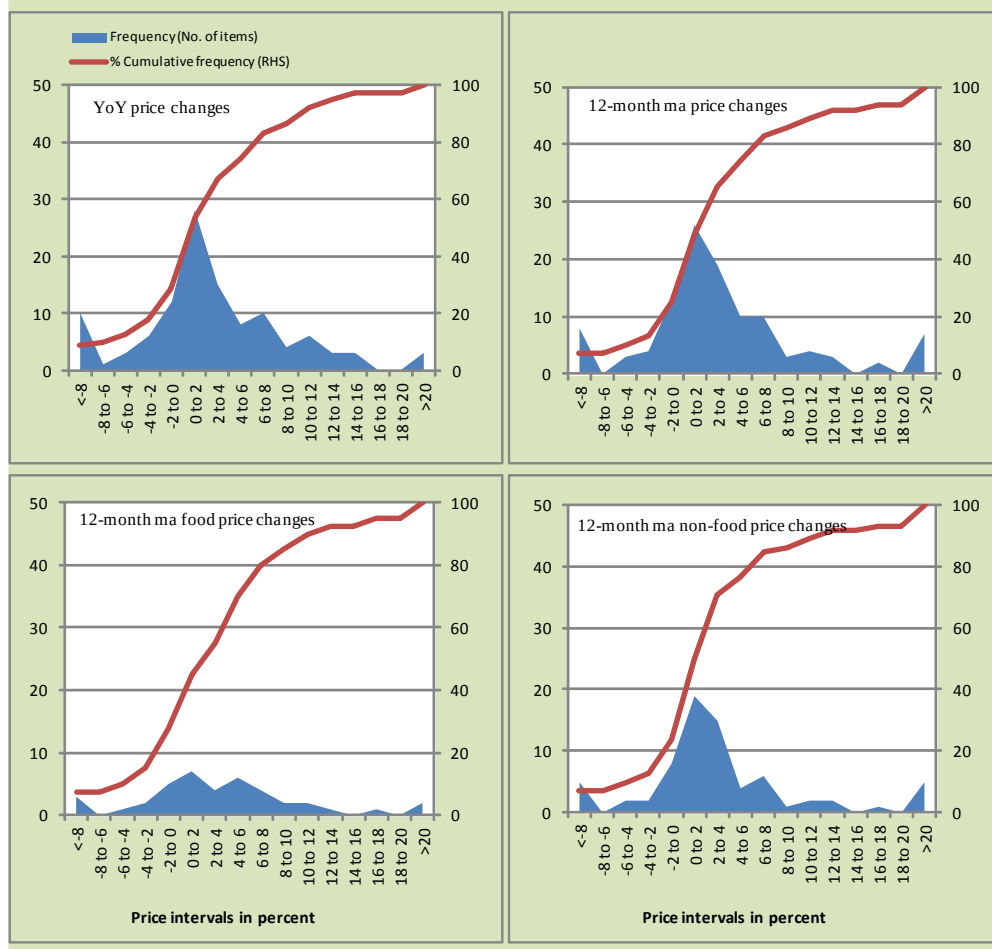
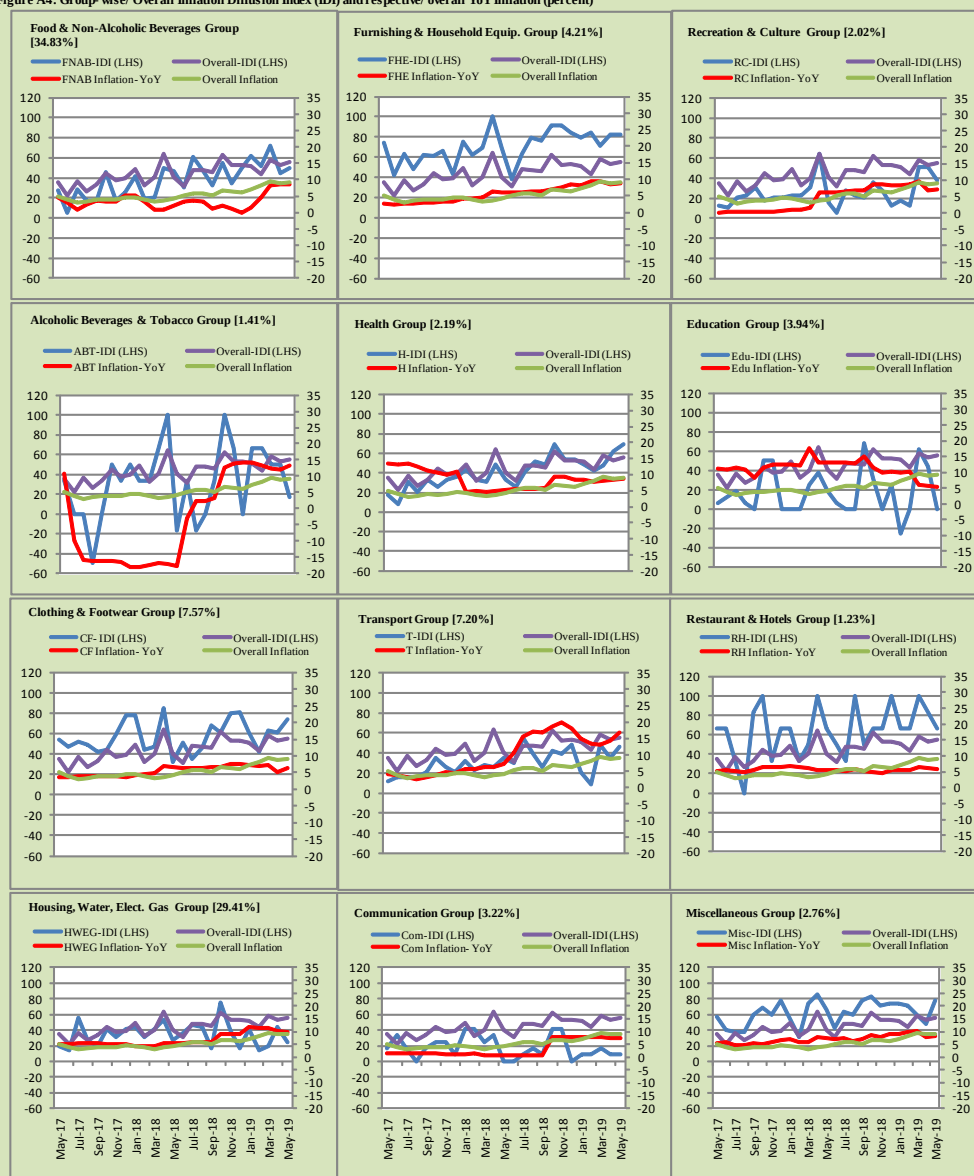


Figure A4: Group-wise/ Overall Inflation Diffusion Index (IDI) and respective/ overall YoY Inflation (percent)



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.