

Inflation Monitor

November 2017



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 4.0 percent on year-on-year basis in November 2017 as compared to 3.8 percent in the previous month and corresponding month of last year.
2. CPI inflation on month-on-month basis is recorded at level of 0.4 percent in November 2017 as compared to 0.7 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 0.51 percent in November 2017 compared to 0.56 percent in the previous month.
3. Core inflation (trimmed) on year-on-year basis is recorded at 4.2 percent in November 2017 as compared to 4.0 percent in the previous month and 3.8 percent during corresponding month of last year.
4. On month-on-month basis, the Core inflation (trimmed) is recorded at 0.3 percent in November 2017 as compared to 0.6 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 5.4 percent in November 2017 as compared to 5.3 percent in the previous month and corresponding month of last year.
6. Core NFNE inflation on month-on-month basis recorded at 0.3 percent in November 2017 as compared to 0.9 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 2.9 percent in November 2017 as compared to 2.3 percent in the previous month and 2.6 percent during the corresponding month of last year.

8. WPI inflation on month-on-month basis recorded at 0.4 percent in November 2017 as compared to 0.6 percent in the previous month. It was -0.2 percent during the corresponding month of last year.
9. SPI inflation on year-on-year basis recorded at 2.5 percent in November 2017 as compared to 2.3 percent in the previous month. It was 0.6 percent in the corresponding month of last year.
10. SPI inflation on month-on-month basis recorded at 0.5 percent in November 2017 as compared to 0.8 percent in the previous month. It was 0.3 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 November 2017 are described below:

- Core RSC inflation on year-on-year basis is recorded at 4.3 percent in November 2017 and remained at level of previous month and 5.0 percent during the corresponding month of last year.
11. Core RSC inflation on month-on-month basis is recorded at 0.2 percent in November 2017 compared to 0.8 percent in the previous month and remained at level during 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
Nov-16	3.8	0.2	3.3	0.2	4.1	0.2	5.3	0.2	3.8	0.2	5.0	0.2	2.6	-0.2	0.6	0.3
Dec-16	3.7	-0.7	3.0	-1.9	4.2	0.2	5.2	0.1	3.7	0.1	4.7	0.2	3.1	-0.1	0.5	-0.4
Jan-17	3.7	0.2	2.6	-1.0	4.4	1.0	5.4	1.1	3.8	0.6	4.9	0.9	4.2	0.5	0.4	-0.6
Feb-17	4.2	0.3	3.7	0.3	4.6	0.3	5.3	0.2	4.1	0.2	4.9	0.2	5.3	0.5	1.6	0.4
Mar-17	4.9	0.8	5.0	1.9	4.9	0.1	5.2	0.1	4.5	0.2	5.0	0.2	6.4	0.7	3.9	2.0
Apr-17	4.8	1.4	4.4	1.7	5.1	1.2	5.5	1.3	4.8	0.8	5.3	1.1	6.0	0.9	2.9	-0.7
May-17	5.0	0.0	4.9	-0.2	5.1	0.2	5.5	0.2	4.8	0.2	5.3	0.3	5.2	-0.2	2.9	-0.7
Jun-17	3.9	-0.4	2.4	-1.1	5.0	0.1	5.5	0.1	4.2	0.0	4.5	-0.4	3.3	-0.5	1.9	0.1
Jul-17	2.9	0.3	-0.1	0.0	5.1	0.6	5.6	0.7	4.0	0.4	4.4	0.4	0.7	-0.2	0.2	-0.6
Aug-17	3.4	0.2	1.2	0.4	5.0	0.1	5.5	0.1	4.2	0.1	4.3	0.2	1.0	0.3	0.5	0.2
Sep-17	3.9	0.6	2.4	1.3	4.9	0.2	5.4	0.1	4.1	0.1	4.2	0.1	1.6	0.1	2.2	1.6
Oct-17	3.8	0.7	2.2	0.6	4.9	0.8	5.3	0.9	4.0	0.6	4.3	0.8	2.3	0.6	2.3	0.8
Nov-17	4.0	0.4	2.4	0.4	5.1	0.4	5.4	0.3	4.2	0.3	4.3	0.2	2.9	0.4	2.5	0.5
* NFNE is Non-food non-energy ** Relatively Stable Component of CPI *** SPI for all income groups combined																

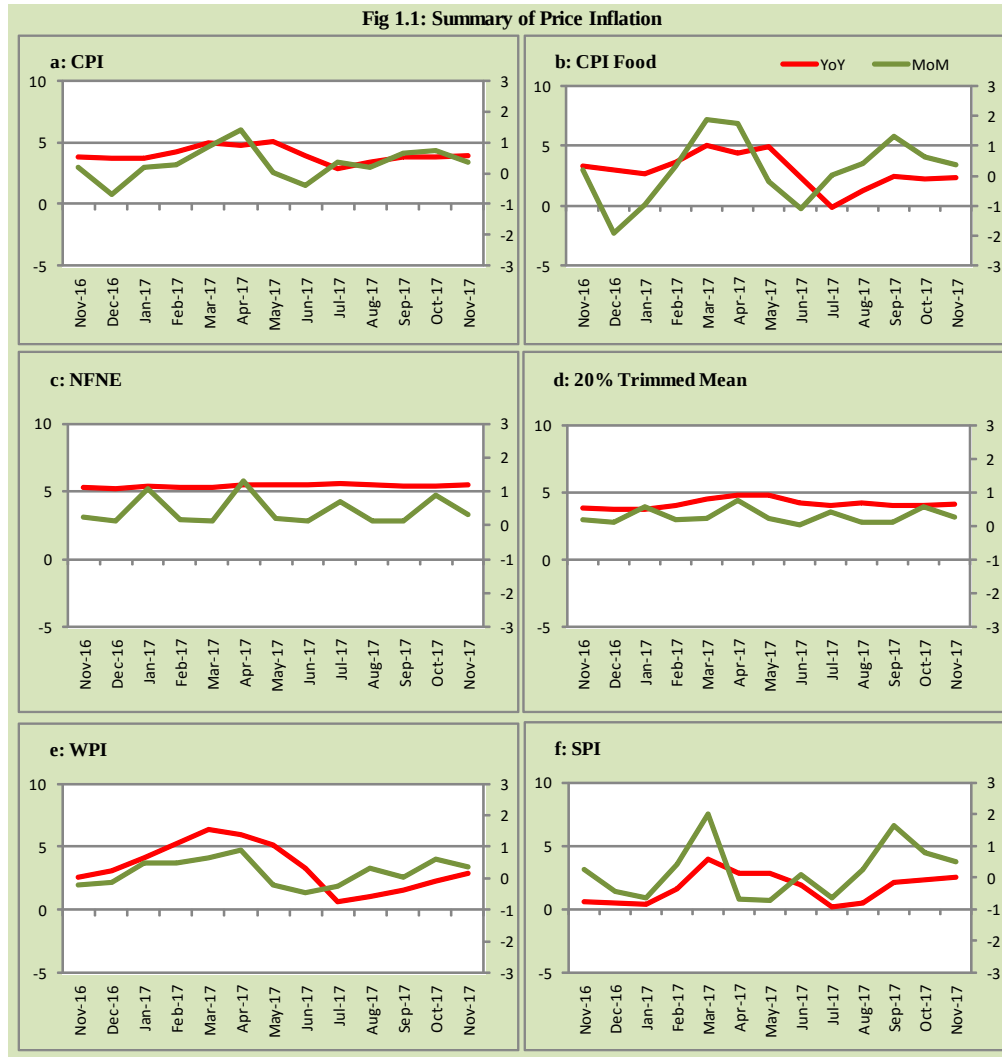


Fig 1.2: Movements in Price Indices (percent)

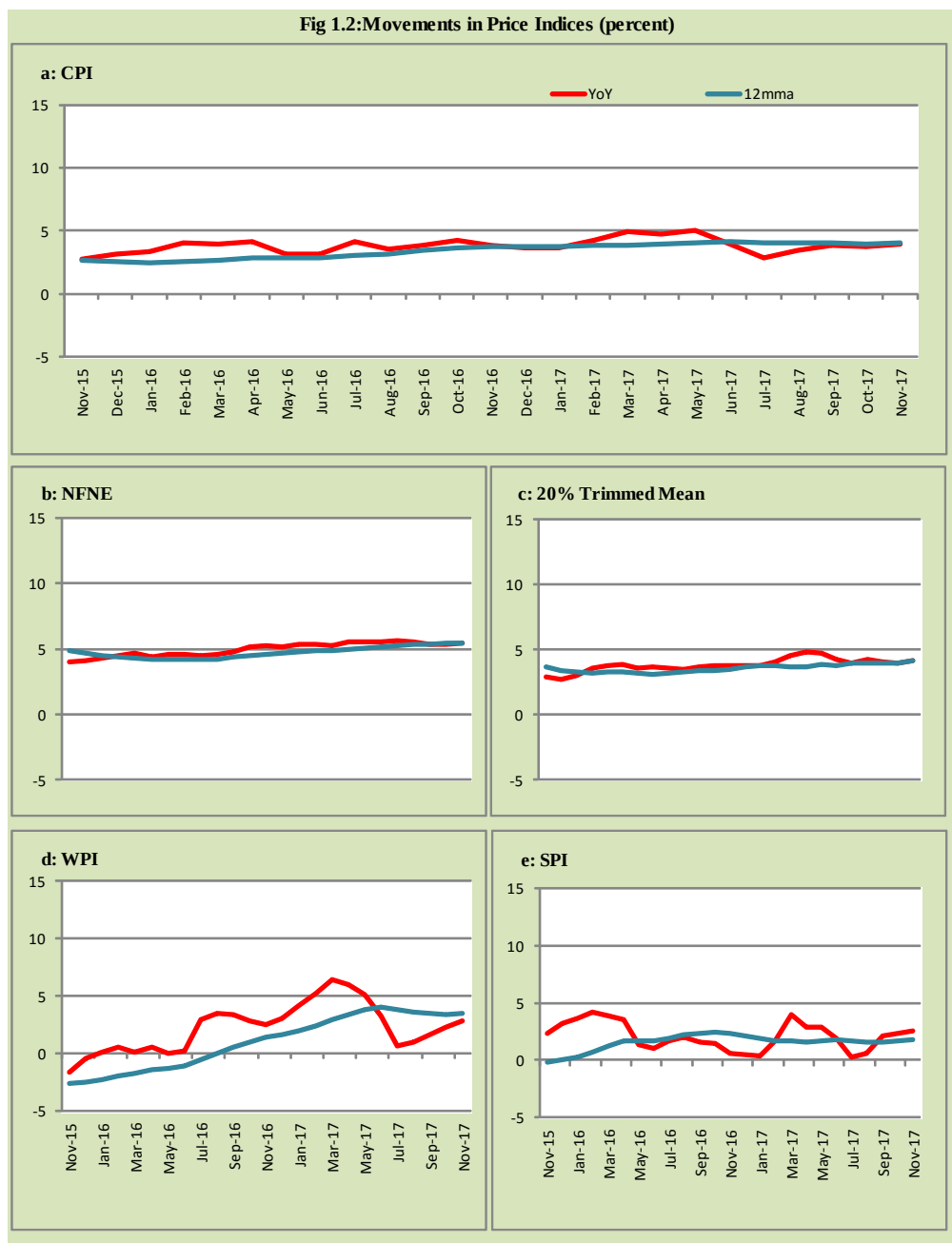


Fig 1.3: Movements in Price Indices -MoM (percent)

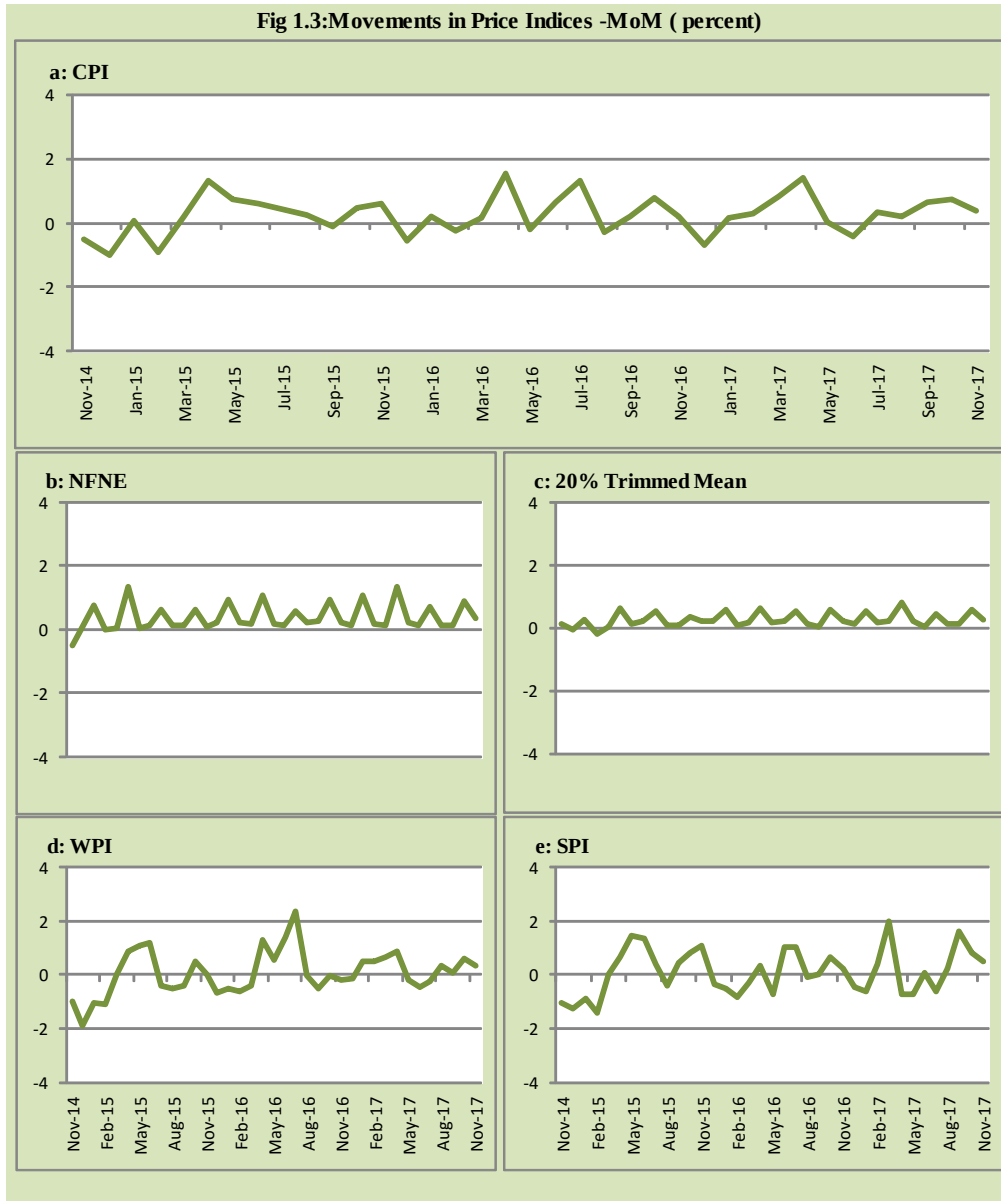
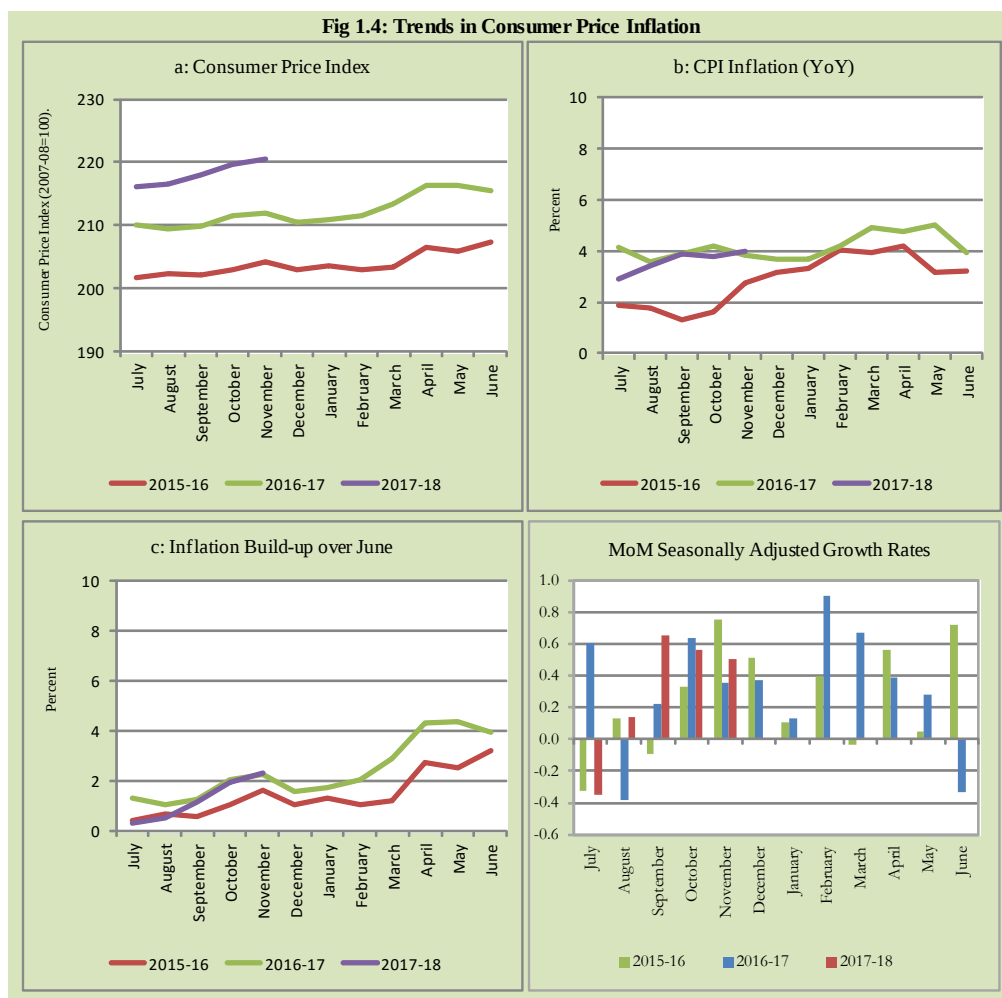


Fig 1.4: Trends in Consumer Price Inflation



2. City wise Inflation

CPI Inflation on year-on-year basis in federal and provincial capitals of Pakistan showed mixed trend during November 2017. Among these five cities, the lowest inflation was observed in Karachi at 2.4 percent while the highest inflation was observed in Lahore at 6.2 percent (Table A6 of annexure-A).

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

	Nov-16		Oct-17		Nov-17	
	MoM	YoY	MoM	YoY	MoM	YoY
Overall CPI	0.2	3.8	0.7	3.8	0.4	4.0
Islamabad	-0.1	3.9	1.6	4.8	0.5	5.4
Karachi	0.5	2.9	0.1	2.5	0.4	2.4
Lahore	0.1	2.0	1.2	5.3	1.0	6.2
Peshawar	0.0	0.9	1.6	3.6	0.7	4.3
Quetta	0.1	3.0	0.6	3.1	0.9	3.9

3. Income Group wise Inflation

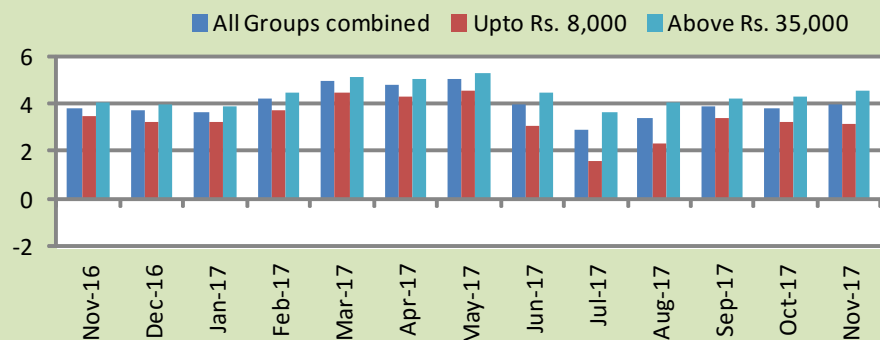
Income group-wise data shows that income group above Rs. 35,000 witnessed higher inflation as compared to other quintiles as well as overall CPI during November 2017 in General, Food and Non-food groups. The income groups (Up to Rs. 8, 000) observed lowest inflation in general CPI and food groups; and income groups (Rs. 8,001- 12,000) observed lowest inflation in non-food groups among income groups during the month of November 2017 (Table A7 of annexure-A).

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

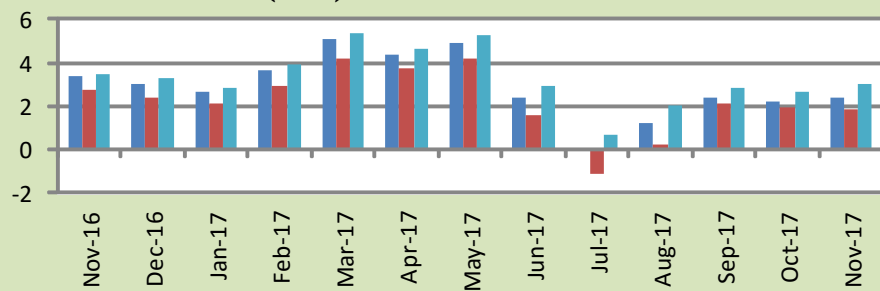
Income Groups	General			Food			Non-food		
	Nov-16	Oct-17	Nov-17	Nov-16	Oct-17	Nov-17	Nov-16	Oct-17	Nov-17
All Groups Combined	3.8	3.8	4.0	3.3	2.2	2.4	4.1	4.9	5.1
Up to Rs. 8,000	3.4	3.2	3.2	2.8	1.9	1.9	4.3	4.8	4.8
Rs. 8,001- 12,000	3.5	3.3	3.3	3.0	2.0	2.0	4.1	4.7	4.7
Rs. 12,001- 18,000	3.6	3.3	3.4	3.2	1.9	2.0	4.0	4.7	4.8
Rs. 18,001- 35,000	3.7	3.4	3.6	3.5	1.9	2.0	3.8	4.7	4.8
Above Rs. 35,000	4.0	4.3	4.5	3.5	2.7	3.0	4.3	5.1	5.3

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 increased to 25.04 percent during November 2017 from 24.31 percent in previous month. It was 36.64 percent in November 2016.

The weighted contribution of non-food group decreased to 74.96 percent in November 2017 from 75.69 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
Nov-16	36.64	9.16	33.91	-5.95	12.22	14.02
Dec-16	33.90	9.91	35.29	-5.45	12.65	13.70
Jan-17	29.56	9.82	35.77	-4.98	12.73	17.10
Feb-17	35.54	8.29	30.79	0.59	10.97	13.82
Mar-17	41.86	6.08	26.25	5.34	9.03	11.44
Apr-17	37.84	5.94	28.43	5.11	11.07	11.60
May-17	40.46	6.15	27.25	4.96	9.55	11.63
Jun-17	24.92	8.04	34.43	5.77	11.93	14.92
Jul-17	-1.32	11.08	48.14	6.37	16.42	19.31
Aug-17	15.23	9.58	41.22	4.54	13.48	15.94
Sep-17	26.02	8.46	36.50	4.83	9.28	14.91
Oct-17	24.31	8.25	34.17	5.96	13.05	14.27
Nov-17	25.04	7.95	32.53	6.73	13.57	14.18

5. Inflation Diffusion Index

Table 5.1 Inflation Diffusion Index - based on MoM change

	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17
General	41.1	33.5	32.3	38.0	28.5	41.6	35.3	22.4	36.8	26.8	33.1	44.6	37.7
Food & Non-Alcoholic Beverages	28.2	17.9	10.5	35.1	25.7	40.4	27.1	5.3	28.7	17.5	17.4	46.1	17.1
Alcoholic Beverages & Tobacco	100.0	83.3	66.7	100.0	33.3	100.0	33.3	0.0	0.0	-50.0	0.0	50.0	33.3
Clothing & Footwear	57.6	66.1	45.8	27.1	25.4	45.8	54.2	47.5	52.5	49.2	42.4	44.1	59.3
Housing, Water, Elect, Gas & other Fuels	41.7	38.9	41.7	22.2	0.0	41.7	19.4	13.9	55.6	27.8	19.4	41.7	30.6
Furnishing & Household Equip. Maintenance etc	53.6	47.8	49.3	62.3	44.9	56.5	73.9	42.0	63.8	47.8	62.3	60.9	66.7
Health	46.2	46.2	17.9	33.3	38.5	38.5	17.9	7.7	30.8	20.5	33.3	25.6	33.3
Transport	7.0	0.0	30.2	30.2	11.6	11.6	11.6	16.3	16.3	16.3	20.9	34.9	25.6
Communication	50.0	25.0	16.7	25.0	50.0	50.0	16.7	33.3	16.7	0.0	16.7	25.0	25.0
Recreation & Culture	25.6	23.1	15.4	30.8	23.1	17.9	12.8	10.3	20.5	23.1	30.8	17.9	20.5
Education	43.8	0.0	18.8	6.3	12.5	37.5	6.3	12.5	18.8	6.3	0.0	50.0	50.0
Restaurant & Hotels	33.3	50.0	50.0	66.7	83.3	83.3	66.7	66.7	33.3	0.0	83.3	100.0	33.3
Miscellaneous	71.4	40.0	77.1	60.0	45.7	57.1	57.1	40.0	37.1	37.1	60.0	68.6	60.0
NFNE	45.6	37.6	39.1	37.6	28.1	40.2	38.5	28.4	42.3	33.4	38.2	43.2	45.0

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	Nov-16		Oct-17		Nov-17	
			YoY	MoM	YoY	MoM	YoY	MoM
1	Wheat	10 Kg	0.39	0.58	-2.40	1.51	-1.38	1.64
2	Wheat Flour Bag	10 Kg	-2.09	0.91	-1.98	1.45	-0.53	2.40
3	Rice Basmati Sup. Qlty.	Kg	1.07	-0.11	13.06	0.57	13.77	0.51
4	Pulse Masoor (Washed)	Kg	4.40	-0.29	-18.59	0.08	-20.49	-2.62
5	Pulse Moong (Washed)	Kg	-7.19	-1.48	-18.02	-2.04	-20.28	-4.19
6	Pulse Mash (Washed)	Kg	5.70	-3.98	-26.82	-5.11	-27.79	-5.25
7	Pulse Gram	Kg	39.95	7.28	-21.58	0.06	-28.40	-2.06
8	Vegetable Ghee (Loose)	Kg	4.02	0.41	3.76	0.30	3.43	0.08
9	Sugar Refined	Kg	22.32	3.85	-21.17	-1.11	-25.60	-1.98
10	Milk Fresh (Unboiled)	Ltr	4.06	0.28	3.95	0.38	3.66	0.00
11	Tea- Tapal Danedar	200 Gm	-2.22	0.20	10.42	0.89	10.20	0.00
12	Beef With Bone Av. Qlty.	Kg	3.74	0.56	6.68	0.38	6.23	0.14
13	Mutton Av. Qlty.	Kg	4.97	0.71	9.05	0.38	9.23	0.86
14	Chicken Farm Broiler (Live)	Kg	0.12	-3.77	-16.68	0.38	-11.72	1.96
15	Eggs Farm	Doz	20.12	23.21	6.72	2.03	12.94	30.39
16	Potatoes	Kg	26.06	21.14	12.16	2.25	-2.18	5.66
17	Onion	Kg	-55.45	-5.66	178.60	1.90	187.01	-2.81
18	Tomatoes	Kg	-38.88	-14.63	70.98	31.42	107.51	3.61
19	Ginger	Kg	-10.26	-0.26	25.38	2.39	19.65	-4.82
20	Garlic	Kg	69.66	1.58	-39.01	-6.29	-44.38	-7.36

7. Global Commodity Prices

Table 7.1 Changes in Major Global Indices (percent)*

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

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

Source: IMF

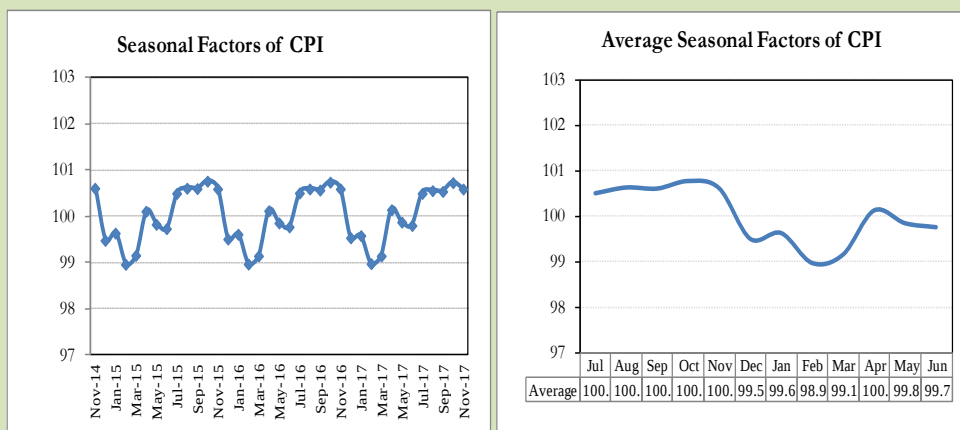
8. Seasonal Adjustment in CPI

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

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

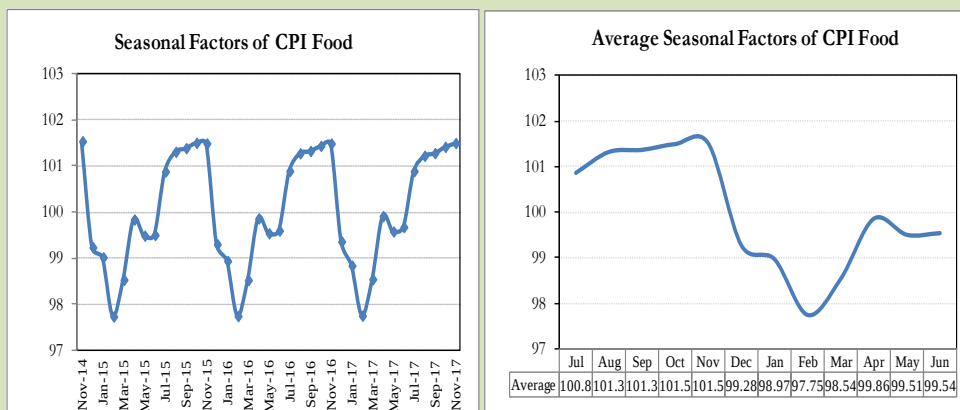
Figure 8.1 reveals that seasonality in CPI has been increasing over the period of last four years. Average seasonal factors reveal strong seasonality during the calendar year. There is an upward seasonality during the months from July to November and downward seasonality in the remaining months of the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

Fig. 8.1 Seasonal Factors of CPI



Note: Data Available in Annex Table 16.

Fig. 8.2 Seasonal Factors of CPI Food



Note: Data Available in Annex Table 17.

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

Fig. 8.3 Seasonal Plots of CPI

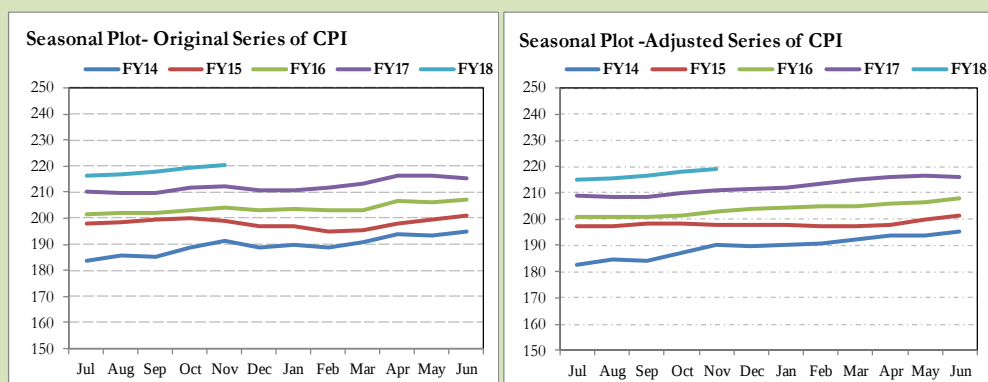
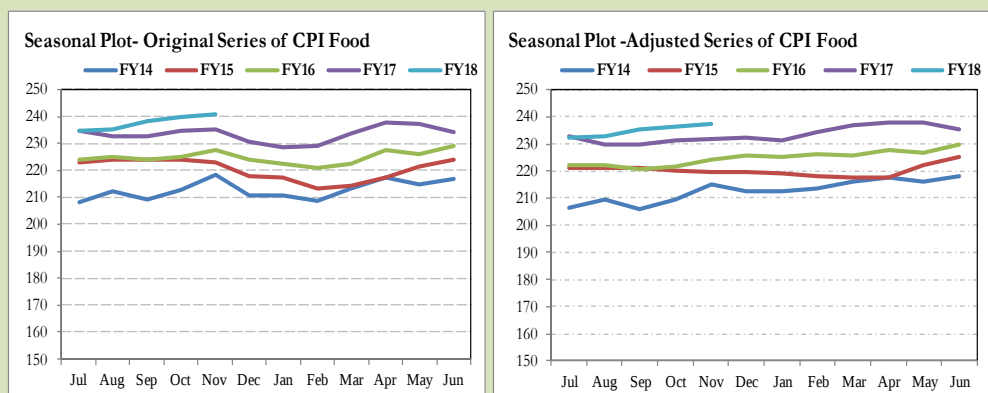


Fig. 8.4 Seasonal Plots of CPI (Food)



Seasonally adjusted CPI for November 2017 stood at 219.13 against 220.42 in original series showing a decrease of 1.29 on account of adjustment of upward seasonality in November 2017.

Seasonally adjusted CPI food group for November 2017 stood at 237.23 against 240.79 in original series showing a decrease of 3.56 on account of adjustment of upward seasonality in November 2017.

Month-on-month change of seasonally adjusted CPI series stood at 0.51% reflecting an increase during November 2017 over previous month and an increase of 0.37% in original series.

Month-on-month change of seasonally adjusted CPI food group series stood at 0.29% reflecting an increase during November 2017 over previous month and an increase of 0.37% 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 November 2017 (corresponding to the seasonally adjusted month-on-month rate) is 6.24 percent.

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

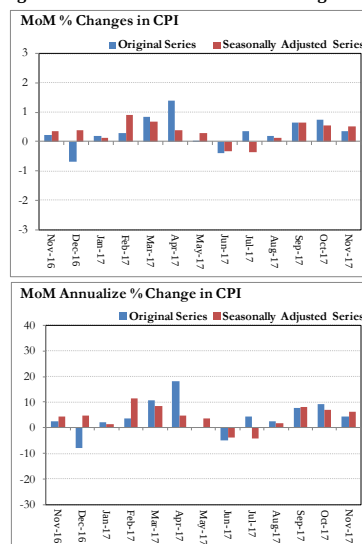
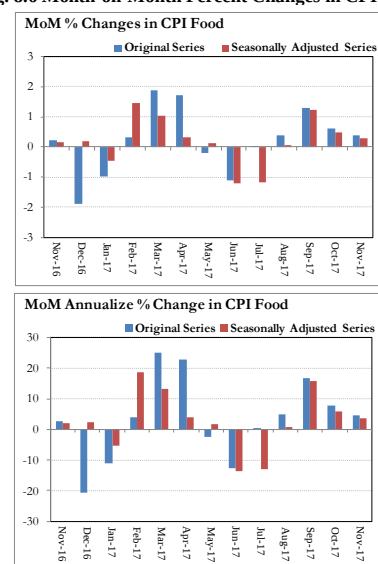


Fig. 8.6 Month-on-Month Percent Changes in CPI Food



Annexure A**Table A1: CPI Inflation by Groups (percent)**

	Weights	MoM change			YoY change		
		Nov-16	Oct-17	Nov-17	Nov-16	Oct-17	Nov-17
I. Food Group	37.5	0.2	0.6	0.4	3.3	2.2	2.4
Food & Non-Alcoholic Beverages	34.8	0.2	0.6	0.4	2.5	3.2	3.4
Alcoholic Beverages & Tobacco	1.4	0.3	-0.3	0.1	17.0	-16.2	-16.4
Restaurant & Hotels	1.2	0.5	1.9	0.3	5.2	6.6	6.4
II. Non-Food Group	62.5	0.2	0.8	0.4	4.1	4.9	5.1
Clothing & Footwear	7.6	0.4	0.3	0.4	4.2	3.8	3.8
Housing, Water, Elect, Gas &	29.4	0.0	1.0	0.0	4.9	4.9	4.9
Furnishing & Household Equip. Maintenance etc	4.2	0.2	0.6	0.5	3.4	3.1	3.3
Health	2.2	0.8	0.6	0.2	8.1	10.6	10.0
Transport	7.2	0.1	1.4	0.8	-3.6	3.9	4.6
Communication	3.2	0.2	0.1	0.0	0.9	1.4	1.2
Recreation & Culture	2.0	0.1	0.3	0.2	1.4	0.3	0.4
Education	3.9	0.5	3.7	1.4	11.5	11.5	12.4
Miscellaneous	2.8	0.5	0.4	1.0	5.9	5.2	5.8
Headline	100.0	0.2	0.7	0.4	3.8	3.8	4.0

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)	
		Nov-16	Nov-17	Nov-16	Nov-17	Nov-16	Nov-17	Nov-16	Nov-17	Nov-16	Nov-17
I. Food Group	2.4	129	132	25	39	61	47	20	30	23	16
Food & Non-Alcoholic Beverages	3.4	117	120	25	36	58	45	15	25	19	14
Alcoholic Beverages & Tobacco	-16.4	6	6	0	3	0	1	2	1	4	1
Restaurant & Hotels	6.4	6	6	0	0	3	1	3	4	0	1
II. Non-Food Group	5.1	348	348	95	77	149	175	79	76	25	20
Clothing & Footwear	3.8	59	59	7	8	32	35	19	16	1	0
Housing, Water, Elect, Gas & other Fuels	4.9	36	36	14	14	9	7	12	13	1	2
Furnishing & Household Equip. Maintenance etc	3.3	69	69	7	2	51	51	11	16	0	0
Health	10.0	39	39	9	8	13	22	9	7	8	2
Transport	4.6	43	43	28	24	10	15	4	2	1	2
Communication	1.2	12	12	3	4	5	4	3	3	1	1
Recreation & Culture	0.4	39	39	23	16	10	17	2	4	4	2
Education	12.4	16	16	1	0	4	2	8	5	3	9
Miscellaneous	5.8	35	35	3	1	15	22	11	10	6	2
Overall	4.0	477	480	120	116	210	222	99	106	48	36

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

Table A3: Top and Bottom 15 Contributors to CPI Inflation (YoY) in November 2017					
Top 15 Contributors		Weights	YoY Change		Weighted Contribution
Items/ Contributors			Nov-16	Nov-17	
Ranked by Weighted Contribution					
1	House Rent	21.81	6.65	6.49	30.69
2	Onion	0.52	-55.45	187.02	19.41
3	Education	3.94	11.54	12.40	13.57
4	Tomatoes	0.43	-38.88	107.51	9.31
5	Milk Fresh	6.68	3.94	3.72	7.89
6	Motor Fuel	3.03	-9.09	11.81	5.81
7	Meat	2.43	4.16	7.26	5.59
8	Rice	1.58	1.06	14.10	4.25
9	Drug Medicine	1.27	8.53	15.00	3.66
10	Fresh Fruits	1.86	5.05	6.27	2.94
11	Tea	0.84	-6.21	10.73	2.74
12	Tailoring	0.88	6.57	7.89	2.53
13	Ready Made Food	1.23	5.24	6.38	2.50
14	Personal Care	1.49	4.53	5.94	2.31
15	Personal Equipments	0.84	8.51	6.77	1.98
Total		48.85			115.16
Bottom 15 Contributors					
1	Cigarettes	1.39	17.08	-16.67	-10.13
2	Sugar	1.04	22.31	-25.60	-8.28
3	Fresh Vegetables	1.71	15.78	-6.57	-4.11
4	Chicken	1.36	0.13	-11.73	-3.31
5	Pulse Gram	0.24	39.95	-28.40	-3.01
6	Pulse Mash (Washed)	0.21	5.70	-27.79	-2.32
7	Pulse Moong	0.23	-7.19	-20.28	-1.57
8	Pulse Masoor	0.27	4.92	-20.27	-1.38
9	Besan	0.15	33.36	-19.13	-1.18
10	Wheat Flour	4.16	-1.84	-0.35	-0.37
11	Potatoes	0.46	26.06	-2.18	-0.35
12	Gram Whole	0.16	44.06	-5.35	-0.32
13	Text Books	0.57	0.62	-1.51	-0.30
14	Wheat	0.35	0.39	-1.38	-0.12
15	Gur	0.02	0.89	-7.96	-0.06
Total		12.33			-36.82

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

<u>Top 15 Contributors</u>		Weights	<u>MoM Change</u>		Weighted Contribution
Items/ Contributors			Nov-16	Nov-17	
Ranked by Weighted Contribution					
1	Eggs	0.46	2.04	30.39	35.82
2	Wheat Flour	4.16	1.28	1.99	21.18
3	Education	3.94	3.66	1.39	17.52
4	Motor Fuel	3.03	1.91	2.22	12.41
5	Potatoes	0.46	2.25	5.66	8.79
6	Personal Equipments	0.84	-0.99	2.18	6.91
7	Tomatoes	0.43	31.43	3.61	6.50
8	Chicken	1.36	0.38	1.95	4.95
9	Bakery & Confectionary	1.16	0.14	1.19	3.72
10	Meat	2.43	0.38	0.39	3.33
11	Tailoring	0.88	0.28	0.91	3.22
12	Household Servent	1.04	0.00	0.62	2.05
13	Woolen Readymade Garments	0.40	0.08	1.53	1.94
14	Cotton Cloth	1.73	0.33	0.36	1.81
15	Personal Care	1.49	0.35	0.38	1.60
Total		23.82			131.75
<u>Bottom 15 Contributors</u>					
1	Fresh Fruits	1.86	-1.07	-4.76	-25.83
2	Onion	0.52	1.90	-2.81	-8.93
3	Sugar	1.04	-1.11	-1.99	-5.07
4	Pulse Mash (Washed)	0.21	-5.11	-5.26	-3.48
5	Pulse Moong	0.23	-2.04	-4.19	-2.80
6	Pulse Gram	0.24	0.06	-2.06	-1.65
7	Fresh Vegetables	1.71	-1.30	-0.24	-1.44
8	Pulse Masoor	0.27	0.45	-2.25	-1.30
9	Gram Whole	0.16	1.59	-0.22	-0.13
10	Wheat	0.35	1.51	1.63	-0.12
11	Gur	0.02	0.74	-1.55	-0.11
12	Besan	0.15	1.65	-0.14	-0.07
13	Spices	0.54	0.13	-0.04	-0.07
14	Beverages	1.20	0.08	-0.02	-0.06
15	Rice	1.58	-0.01	-0.02	-0.06
Total		10.10			-51.12

Table A3.2: Top Fifteen Contributors to CPI Inflation (YoY) in November 2017					
Items/ Contributors		Weights	YoY Change		Weighted Contribution
			Nov-16	Nov-17	
A. Ranked by Percentage Change					
1	Onion	0.52	-55.45	187.02	19.41
2	Tomatoes	0.43	-38.88	107.51	9.31
3	Drug Medicine	1.27	8.53	15.00	3.66
4	Rice	1.58	1.06	14.10	4.25
5	Eggs	0.46	20.12	12.94	1.70
6	Education	3.94	11.54	12.40	13.57
7	Motor Fuel	3.03	-9.09	11.81	5.81
8	Betel Leaves & Nuts	0.02	9.23	11.34	0.08
9	Tea	0.84	-6.21	10.73	2.74
10	Kerosene Oil	0.01	-7.16	10.23	0.01
11	Tailoring	0.88	6.57	7.89	2.53
12	Meat	2.43	4.16	7.26	5.59
13	Honey	0.04	3.48	7.24	0.12
14	Medical Test	0.32	4.84	7.14	0.52
15	Construction Wage Rate	0.33	4.12	6.97	0.64
Total		16.11			69.93
B. Ranked by Weights					
1	House Rent	21.81	6.65	6.49	30.69
2	Milk Fresh	6.68	3.94	3.72	7.89
3	Electricity	4.40	0.00	0.00	0.00
4	Wheat Flour	4.16	-1.84	-0.35	-0.37
5	Education	3.94	11.54	12.40	13.57
6	Communication & Apparatus	3.15	0.65	1.14	0.55
7	Motor Fuel	3.03	-9.09	11.81	5.81
8	Transport Services	2.70	-2.08	0.16	0.10
9	Meat	2.43	4.16	7.26	5.59
10	Vegetable Ghee	2.07	1.79	3.80	1.30
11	Fresh Fruits	1.86	5.05	6.27	2.94
12	Cooking Oil	1.75	0.42	3.42	0.96
13	Cotton Cloth	1.73	4.62	3.96	1.84
14	Fresh Vegetables	1.71	15.78	-6.57	-4.11
15	Rice	1.58	1.06	14.10	4.25
Total		63.03			70.99
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 4.0 percent in November, 2017.					

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

Items/ Contributors		Weights	YoY Change		Weighted Contribution
			Nov-16	Nov-17	
A. Ranked by Weighted Contribution					
1	Onion	0.52	-55.45	187.02	19.41
2	Tomatoes	0.43	-38.88	107.51	9.31
3	Milk Fresh	6.68	3.94	3.72	7.89
4	Meat	2.43	4.16	7.26	5.55
5	Rice	1.58	1.06	14.10	4.25
6	Fresh Fruits	1.86	5.05	6.27	2.94
7	Tea	0.84	-6.21	10.73	2.74
8	Ready Made Food	1.23	5.24	6.38	2.50
9	Eggs	0.46	20.12	12.94	1.70
10	Vegetable Ghee	2.07	1.79	3.80	1.30
Total		18.11			57.61
B. Ranked by Percentage Change					
1	Onion	0.52	-55.45	187.02	19.41
2	Tomatoes	0.43	-38.88	107.51	9.31
3	Rice	1.58	1.06	14.10	4.25
4	Eggs	0.46	20.12	12.94	1.70
5	Betel Leaves & Nuts	0.02	9.23	11.34	0.08
6	Tea	0.84	-6.21	10.73	2.74
7	Meat	2.43	4.16	7.26	5.59
8	Honey	0.04	3.48	7.24	0.12
9	Ready Made Food	1.23	5.24	6.38	2.50
10	Fresh Fruits	1.86	5.05	6.27	2.94
Total		9.42			48.62
C. Ranked by Weights					
1	Milk Fresh	6.68	3.94	3.72	7.89
2	Wheat Flour	4.16	-1.84	-0.35	-0.37
3	Meat	2.43	4.16	7.26	5.59
4	Vegetable Ghee	2.07	1.79	3.80	1.30
5	Fresh Fruits	1.86	5.05	6.27	2.94
6	Cooking Oil	1.75	0.42	3.42	0.96
7	Fresh Vegetables	1.71	15.78	-6.57	-4.11
8	Rice	1.58	1.06	14.10	4.25
9	Cigarettes	1.39	17.08	-16.67	-10.13
10	Chicken	1.36	0.13	-11.73	-3.31
Total		25.01			5.00
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 2.4 percent in November, 2017.					

Table A3.4: Top Ten Contributors to CPI Non-food Inflation (YoY) in November 2017					
Items/ Contributors		Weights	YoY Change		Weighted Contribution
			Nov-16	Nov-17	
A. Ranked by Weighted Contribution					
1	House Rent	21.81	6.65	6.49	30.69
2	Education	3.94	11.54	12.40	13.57
3	Motor Fuel	3.03	-9.09	11.81	5.81
4	Drug Medicine	1.27	8.53	15.00	3.66
5	Tailoring	0.88	6.57	7.89	2.53
6	Personal Care	1.49	4.53	5.94	2.31
7	Personal Equipments	0.84	8.51	6.77	1.98
8	Cotton Cloth	1.73	4.62	3.96	1.84
9	Ready Made Garments	0.97	5.02	4.15	1.15
10	Household Servent	1.04	5.39	3.56	1.11
Total		37.02			64.63
B. Ranked by Percentage Change					
1	Drug Medicine	1.27	8.53	15.00	3.66
2	Education	3.94	11.54	12.40	13.57
3	Motor Fuel	3.03	-9.09	11.81	5.81
4	Kerosene Oil	0.01	-7.16	10.23	0.01
5	Tailoring	0.88	6.57	7.89	2.53
6	Medical Test	0.32	4.84	7.14	0.52
7	Construction Wage Rate	0.33	4.12	6.97	0.64
8	Personal Equipments	0.84	8.51	6.77	1.98
9	Cleaning & Laundering	0.21	4.31	6.58	0.42
10	House Rent	21.81	6.65	6.49	30.69
Total		32.65			59.83
C. Ranked by Weights					
1	House Rent	21.81	6.65	6.49	30.69
2	Electricity	4.40	0.00	0.00	0.00
3	Education	3.94	11.54	12.40	13.57
4	Communication & Apparatus	3.15	0.65	1.14	0.55
5	Motor Fuel	3.03	-9.09	11.81	5.81
6	Transport Services	2.70	-2.08	0.16	0.10
7	Cotton Cloth	1.73	4.62	3.96	1.84
8	Gas	1.58	0.00	0.00	0.00
9	Footware	1.55	0.97	0.46	0.14
10	Personal Care	1.49	4.53	5.94	2.31
Total		45.39			55.01
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 Non-food, which is 5.1 percent in November, 2017.					

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

Groups	Decrease or no change	Subdued increase (Greater than 0% but less than 5%)	Moderate increase (5% but less than 10%)	Double digit increase (10% or more)
Food & Non-Alcoholic Beverages	Garlic, Pulse Gram, Pulse Mash (Washed), Sugar Refined, Pulse Masoor (Washed), Pulse Moong-w	Malta/Mosambi, Pepper Black National, Vegetable Ghee Tin, Cucumber (Kheera), Fruit Juice Tetra Pack, Ice Cream Walls	Pumpkin, Pomegranate (Annar), Cardamom Small Av. Qlty, Mutton Av. Qlty., Ice, Spinach, Turai	Onion, Tomatoes, Ginger, Apple, Tea Lipton Yellow Label 200 Gm, Rice Basmati Broken Av. Ql., Cuminseed White National, Rice Basmati Sup. Qlty., Coconut Dry Av. Qlty., Eggs Farm
Alcoholic Beverages & Tobacco	Cigarettes Capstan 20,S, Cigarettes Morven Gold 20,S, Cigarettes K-20,S	Cigarettes Gold Leaf 20,S	Betel Leaves	Betel Nuts
Clothing & Footwear	Gents Shoe, Art 1109 Servis, Child Shoe Power Lite Bata, Sports Shoes, Ladies Spoung Chappal Bata, Ladies Sandal Bata, Gents Sandal Bata	Tropical Suiting Law.Pur, Washing Charges Paint & Shirt, Foot Wear Local (Female), Brassier Sup. Qlty, Azarband Cotton Avg. Qlty	Brassier Av. Qlty, Dry Cleaning Suit Coat Pant, Tailoring Awami-Suit (Male), Tailoring Charges Pant (Men), Frock W/Wear Girls, Gloves Av. Qlty, Washing Ch. (Kamiz-Shalwar)	
Housing, Water, Elect. Gas & other Fuels	Cement (Local), Bajree, Elect. Charges Upto 50 Units, Elect. Charges 01 - 100 Units, Elect. Charges Above 1000 Units	Plumber Wage Rate, Water Charges Per House, Synthetic Enemal Ici, Bricks (New) 1st Class, Firewood Whole, Synthetic Enemal Robialac	Mason (Raj) Wage Rate, Unskilled Labour Wage Rat, Electrician Wage Rate(P/Pnt), Carpenter Wage Rate, Cement Blocks (6"X8"X12")	Iron Bar (M.S. Bar) 1/2", Kerosene Oil
Furnishing & Household Equip. Maintenance etc	Washing Powder 1000 Grm (Express), Washing Powder (Wheel/ Bonus)	Single Bed Without Foam, Mattress Single(4"Thick), Dinner Set Plastic 72 Pcs, Sofa Set Wooden With Foam, Air Cooler Super Asia	Thermos Starvac 1 Ltr, Boot Polish Cherry/Kiwi 50 Ml, Tea Set Pak. China Wear 21 Pcs, Chair Shesham Wood, Sewing Machine (Singer)	
Health	Calcium Syrup Sandoz, Phenergan Syrup 120 Ml., Betnesol Eye Drops, Betnovate-N Ointment 5 Gm, Brufen Tabs 200-Mg.	Doctor (Mbbs) Clinic Fee, Glycine Small Bottle, Septran Tablets, Ecg Charges, Cotton Bandage 2" - 4", Thermometer China, Disprin Tab., Trisil Tab.	Urine Test (Dr) Charges, Blood Test (Cp) Charges, Jouhar Joshanda, X-Ray (Chest) Charges, Gripe-Water Woodward's, Entox Tab.	Burnol Cream 30 Gm, Dettol (Medium)
Transport	Tyre Car W/O Tube, Platform Ticket, Bus Fare Outside City (Non A/C), Bus Fare Min (Within City), Bus Fare Max (Within City)	Car Honda Civic 1500 Cc, Cng, Car Suzuki 800 Cc (W/O. Ac), Cycle Overhauling Charges, Car Toyota 1300 Cc, Tyre Puncture Charges	Car Suzuki 1000 Cc, Gas Cylinder S.Size (L.P.G)	Petrol Super, High Speed Diesel Hsd
Communication	Postal Envelope Domestic, Telephone Charges Local Call, Telephone Charges Outside City, U.M.S. Reg	Postal Registration Charges, Mobile Set Nokia/Sony/Ericsson Av. Qlty, Mobile Cell Charges, Postal	T.C.S. Ch. Min. Within Zone, Internet Charges, Fax Charges (Local)	Telephone Set Av. Qlty,
Recreation & Culture	Video Game Sega 16 Byte, Urdu Book Class Ix/X (T.B.Board), Urdu Book Class V (T.B.Board), English Book Class V1, Maths Book Class Ix Or X, Maths Book	Daily "Dawn", Weekly "Mag", Weekly "Akhbar-E-Jahan", Computer Cd (Tdk/Imation), Photostate Paper 70 Gm, Fountain Pen Hero/Wings/China	Daily "Jang", Ball Pen (Local), Daily "Nawa-E-Waqt", Pencil Goldfish/Deer	Cinema Non-A/C High Class, Cinema A/C High Class
Education		Mba Tuition Fee	Pvt School Fee Eng. Med (Classs-V), Pvt School Fee Eng. Med (Class-I), Coaching Charges For Class Xi/ Xii	Govt. University Fee Msc/ Ma, Govt. Engg. Coll. Fee 1st Year, Govt. College Fee 1st. Year, Govt. College Fee 4Th. Year, Govt. Med. College Fee Mbbs 1st Year
Restaurant & Hotels		Bread Tandoori St. Size,	Cooked Beef (Av. Hotel), Chicken Biryani Full/Double, Tea Prepared (Ordinary)	Cooked Mutton (Av. Hotel)
Miscellaneous	Shampoo Sunsilk/Pantene 100 Ml	Haircut Charges For Men, Suitcase Rexin (24"X16"X6"), Talc Powder Viceroy/ Black Cat	Toothpowder Dentonic 90 Gms, Toilet Soap Lux 95 Gms, Purse Ladies (Leather) Av. Qlty, Wrist Watch Ladies	Toilet Soap Lifebouy 140 Gms, Artificial Jewellery Set

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

	Up to Rs: 8000						Rs 8001- 12000					
	General		Food		Non-Food		General		Food		Non-Food	
	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY
1 Rawalpindi	0.8	2.8	1.6	1.7	-0.1	4.0	0.8	3.0	1.6	1.9	-0.1	4.1
2 Islamabad	0.7	3.9	1.4	2.9	0.0	5.0	0.8	4.8	1.6	2.6	-0.1	7.2
3 Lahore	1.5	4.8	2.9	4.8	-0.4	4.9	1.3	5.2	2.6	5.0	-0.2	5.5
4 Gujranwala	0.2	2.4	0.3	0.1	0.1	5.3	0.3	2.4	0.4	0.0	0.1	5.1
5 Sialkot	0.8	3.7	1.1	0.5	0.4	8.1	0.6	4.8	0.9	1.5	0.3	8.6
6 Faisalabad	1.9	6.3	2.1	3.7	1.6	9.6	2.0	6.4	2.1	3.1	1.8	10.0
7 Multan	0.1	1.3	-0.1	-0.3	0.4	3.2	0.1	1.7	-0.1	-0.1	0.3	3.5
8 Sargodha	0.1	2.0	-0.5	0.5	0.8	3.6	0.1	2.2	-0.5	0.9	0.7	3.4
9 Bahawalpur	1.2	2.8	2.2	1.4	0.2	4.3	1.1	3.2	2.1	1.6	0.2	4.7
10 Karachi	0.0	1.5	-0.1	0.5	0.2	2.8	0.1	1.8	0.1	1.1	0.2	2.6
11 Hyderabad	-0.2	2.0	-0.7	1.0	0.3	3.4	-0.1	2.0	-0.4	1.2	0.2	3.0
12 Sukkur	0.5	1.8	0.7	1.4	0.3	2.3	0.7	2.3	0.9	1.3	0.5	3.3
13 Larkana	1.0	4.8	1.7	6.3	0.3	3.2	0.8	5.3	1.2	6.8	0.5	3.9
14 Peshawar	0.8	2.7	1.3	1.6	0.2	4.0	0.8	2.6	1.4	1.2	0.2	4.1
15 Bannu	0.5	3.4	0.8	1.5	0.1	5.5	0.6	4.0	1.0	2.4	0.1	5.6
16 Quetta	0.8	4.6	1.2	5.5	0.3	3.5	0.8	4.1	1.2	5.0	0.3	3.2
17 Khuzdar	0.4	5.7	0.4	4.4	0.3	7.2	0.6	6.1	0.6	4.4	0.5	8.0
	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	0.8	3.0	1.5	1.7	0.1	4.2	0.7	3.0	1.6	1.6	0.1	4.2
2 Islamabad	0.9	4.7	1.6	2.4	0.2	7.0	0.8	4.7	1.7	2.5	0.1	6.6
3 Lahore	1.3	5.6	2.5	4.9	0.0	6.3	1.1	6.0	2.3	5.0	0.0	7.0
4 Gujranwala	0.3	3.0	0.4	0.4	0.1	5.7	0.3	3.2	0.5	0.9	0.2	5.3
5 Sialkot	0.7	5.7	0.9	2.8	0.5	8.7	0.6	5.6	0.8	2.9	0.4	8.1
6 Faisalabad	2.0	6.9	2.2	2.9	1.8	10.9	2.0	7.0	2.3	2.6	1.6	10.8
7 Multan	0.1	2.1	-0.1	0.2	0.3	3.9	0.1	2.1	-0.2	0.2	0.3	3.8
8 Sargodha	0.2	2.4	-0.3	0.6	0.6	4.1	0.1	2.9	-0.3	0.6	0.5	4.7
9 Bahawalpur	1.1	3.7	2.1	2.0	0.3	5.1	1.0	4.1	2.0	1.9	0.2	5.7
10 Karachi	0.2	1.8	0.2	1.2	0.2	2.4	0.3	1.7	0.4	1.1	0.2	2.3
11 Hyderabad	0.0	2.7	-0.2	1.5	0.3	4.0	0.1	2.9	-0.2	1.7	0.5	4.0
12 Sukkur	1.2	3.2	1.0	1.1	1.4	5.2	1.4	4.0	0.6	1.7	2.0	5.9
13 Larkana	0.9	5.5	1.1	6.4	0.7	4.8	0.7	5.7	0.6	6.7	0.7	4.9
14 Peshawar	0.8	3.2	1.4	1.2	0.2	5.1	0.7	3.5	1.4	1.6	0.2	5.0
15 Bannu	0.6	4.7	1.0	2.8	0.2	6.4	0.6	4.9	1.2	2.8	0.2	6.6
16 Quetta	1.0	4.1	1.3	4.6	0.7	3.7	0.9	3.8	1.2	4.2	0.7	3.5
17 Khuzdar	1.0	7.0	0.9	5.0	1.1	9.1	1.3	7.1	1.2	5.1	1.4	9.0
	Above Rs 35000						Combined					
	General		Food		Non-Food		General		Food		Non-Food	
	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY
1 Rawalpindi	0.6	3.6	1.6	2.6	0.2	4.0	0.7	3.4	1.6	2.2	0.1	4.1
2 Islamabad	0.5	5.5	1.4	3.5	0.1	6.5	0.5	5.4	1.4	3.4	-0.1	6.9
3 Lahore	0.8	6.8	2.1	6.6	0.1	6.9	1.0	6.2	2.3	5.6	0.0	6.7
4 Gujranwala	0.3	3.9	0.6	2.4	0.2	4.7	0.3	3.2	0.5	1.0	0.2	4.8
5 Sialkot	0.6	6.3	0.9	4.1	0.5	7.5	0.6	5.7	0.9	3.0	0.5	7.7
6 Faisalabad	1.7	7.9	2.8	4.0	1.2	9.9	1.9	7.1	2.4	3.2	1.5	9.8
7 Multan	0.2	2.9	-0.2	1.2	0.3	3.8	0.1	2.3	-0.2	0.4	0.3	3.7
8 Sargodha	0.3	3.8	0.0	1.4	0.5	4.8	0.2	2.8	-0.3	0.8	0.5	4.1
9 Bahawalpur	1.1	5.1	2.3	4.3	0.5	5.5	1.1	4.1	2.2	2.4	0.4	5.1
10 Karachi	0.5	2.8	0.7	2.2	0.4	3.1	0.4	2.4	0.5	1.7	0.3	2.9
11 Hyderabad	0.4	3.8	0.0	3.4	0.7	4.0	0.2	2.9	-0.2	2.0	0.4	3.7
12 Sukkur	0.8	3.8	0.4	2.8	1.0	4.3	1.0	3.2	0.7	1.8	1.2	4.2
13 Larkana	0.6	5.3	0.3	7.3	0.7	4.5	0.8	5.3	1.0	6.4	0.7	4.6
14 Peshawar	0.6	5.8	1.3	3.0	0.2	7.2	0.7	4.3	1.3	1.8	0.2	6.1
15 Bannu	0.4	4.2	0.9	2.5	0.2	5.0	0.5	4.3	1.0	2.5	0.2	5.6
16 Quetta	0.9	3.7	1.0	4.5	0.8	3.3	0.9	3.9	1.2	4.7	0.7	3.4
17 Khuzdar	1.5	7.4	0.5	5.9	2.0	8.2	0.8	6.4	0.7	4.4	0.9	7.9

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

City	High inflation cities			City	Low inflation cities		
	General	Food	Non-food		General	Food	Non-food
Turbat	8.2	3.3	11.1	Quetta	3.9	4.7	3.4
Faisalabad	7.1	3.2	9.8	Abbottabad	3.8	5.4	2.7
D. M. Jamali	6.8	9.5	4.9	Rawalpindi	3.4	2.2	4.1
Khuzdar	6.4	4.4	7.9	Sukkur	3.2	1.8	4.2
Vehari	6.3	1.2	10.0	Gujranwala	3.2	1.0	4.8
D. I. Khan	6.2	4.8	7.2	Mardan	3.1	2.5	3.5
Lahore	6.2	5.6	6.7	Sahiwal	3.0	-0.4	5.2
Gawadar	6.1	4.4	7.4	Hyderabad	2.9	2.0	3.7
Loralai	6.1	3.7	7.7	Sargodha	2.8	0.8	4.1
Bahawalnagar	5.9	1.3	9.0	Attock	2.8	1.8	3.5
Sialkot	5.7	3.0	7.7	D. G. Khan	2.6	0.3	4.1
Islamabad	5.4	3.4	6.9	Karachi	2.4	1.7	2.9
Larkana	5.3	6.4	4.6	Multan	2.3	0.4	3.7
Mingora	5.3	2.1	7.2	Jhelum	2.1	-0.5	4.1
Mianwali	4.3	-1.1	7.8	Dadu	1.8	1.1	2.3
Peshawar	4.3	1.8	6.1	Mirpukhas	1.6	1.2	1.9
Bannu	4.3	2.5	5.6	Nawabshah	1.5	2.1	1.2
Jhang	4.1	1.7	5.6	Wazirabad	1.4	-1.1	3.4
Bahawalpur	4.1	2.4	5.1	Mithi	1.0	0.5	1.3
R. Y. Khan	4.0	1.6	5.6	Muzaffargarh	0.9	-1.1	2.3

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		
	Nov-16	Oct-17	Nov-17	Nov-16	Oct-17	Nov-17
<u>Up to Rs. 8000</u>						
General	0.2	0.7	0.2	3.4	3.2	3.2
Food	0.2	0.7	0.2	2.8	1.9	1.9
Non-food	0.2	0.7	0.2	4.3	4.8	4.8
<u>Rs. 8001- 12000</u>						
General	0.2	0.7	0.3	3.5	3.3	3.3
Food	0.2	0.7	0.2	3.0	2.0	2.0
Non-food	0.2	0.7	0.3	4.1	4.7	4.7
<u>Rs. 12001- 18000</u>						
General	0.2	0.7	0.3	3.6	3.3	3.4
Food	0.2	0.6	0.3	3.2	1.9	2.0
Non-food	0.2	0.7	0.3	4.0	4.7	4.8
<u>Rs. 18001- 35000</u>						
General	0.2	0.8	0.3	3.7	3.4	3.6
Food	0.2	0.6	0.4	3.5	1.9	2.0
Non-food	0.2	0.9	0.3	3.8	4.7	4.8
<u>Above Rs. 35000</u>						
General	0.2	0.8	0.4	4.0	4.3	4.5
Food	0.2	0.6	0.5	3.5	2.7	3.0
Non-food	0.2	0.9	0.4	4.3	5.1	5.3
<u>All income groups</u>						
General	0.2	0.7	0.4	3.8	3.8	4.0
Food	0.2	0.6	0.4	3.3	2.2	2.4
Non-food	0.2	0.8	0.4	4.1	4.9	5.1

Table A8: SPI Item-wise Price Movements

Sr.No.	Items	Unit	Prices	Percentage change	
			Nov-17	YoY	MoM
1	Wheat	10Kg.	335.6	-2.1	2.4
2	Wheat Flour Bag	10Kg.	385.7	0.0	2.9
3	Rice Basmati Broken	Kg.	70.7	14.0	0.5
4	Rice Irri-6/9	Kg.	51.0	6.4	0.5
5	Bread Plain Med.Size (340-400 Gm.)	Each	42.4	3.2	3.2
6	Beef	Kg.	343.8	6.0	0.1
7	Mutton	Kg.	727.6	11.3	1.7
8	Chicken Live (Farm)	Kg.	130.3	-10.2	4.0
9	Milk Fresh	Litr	82.5	2.7	0.0
10	Curd	Kg.	98.7	4.9	0.0
11	Milk Powdered Nido	500G	379.2	-2.4	1.0
12	Egg Hen (Farm)	Doz.	132.2	8.5	24.4
13	Mustard Oil	Kg.	185.0	1.9	0.5
14	Cooking Oil (Tin)	2.5Ltr	469.5	3.3	0.2
15	Veg. Ghee (Tin)	2.5Kg.	462.7	3.8	0.7
16	Veg.Ghee Loose	Kg.	145.6	2.2	-0.2
17	Bananas	Doz.	61.9	-1.3	-0.5
18	Masoor Pulse Washed	Kg.	120.7	-18.8	-0.9
19	Moong Pulse Washed	Kg.	117.0	-19.7	-2.8
20	Mash Pulse Washed	Kg.	169.4	-29.2	-5.1
21	Gram Pulse Washed	Kg.	120.8	-31.1	-1.8
22	Potatoes	Kg.	42.1	-0.8	4.0
23	Onions	Kg.	73.2	151.8	-7.5
24	Tomatoes	Kg.	105.4	105.0	-6.7
25	Sugar	Kg.	53.7	-25.2	-1.1
26	Gur	Kg.	83.9	-8.4	-1.4
27	Salt Powdered Loose (Lahori)	Kg.	11.0	3.9	0.0
28	Red Chillies Powder Loose	Kg.	258.5	-6.7	0.7
29	Garlic	Kg.	163.1	-44.5	-4.3
30	Tea (Yellow Lable 200 Gm.)	200Gm.	180.5	14.1	0.0
31	Cooked Beef Plate	Each	98.8	6.9	3.0
32	Cooked Dal Plate	Each	58.3	2.4	0.0
33	Tea Prepared (Sada)	Cup	21.2	6.3	0.0
34	Cigarettes K-2 (20'S)	20'S	50.8	-21.3	0.0
35	Long Cloth (Coarse Latha)	Mtr.	212.3	3.3	0.0
36	Shirting	Mtr.	169.6	3.2	0.0
37	Lawn	Mtr.	255.8	1.8	0.0
38	Georgette (Voil Printed)	Mtr.	125.7	1.3	0.0
39	Sandal Gents Bata	Pair	699.0	0.0	0.0
40	Chappal Spng.Bata (Gents)	Pair	179.1	0.0	0.0
41	Sandal Ladies Bata	Pair	502.4	0.0	0.0
42	Electric Charges 1-50	Unit	2.0	0.0	0.0
43	Gas Charges Upto 3.3719	Mmbtu	128.7	0.0	0.0
44	Kerosene	Litr	90.4	17.3	8.6
45	Firewood	40Kg	618.8	3.0	1.0
46	Energy Savor 14 Watt	Each	169.3	0.9	0.3
47	Washing Soap (200-250 Gm.)	Cake	25.9	0.0	0.0
48	Match Box	Each	2.2	5.7	0.0
49	Petrol	Litr	76.8	17.9	3.4
50	Diesel	Litr	85.5	16.4	6.5
51	L.P.G.(11 Kg Cylander.)	Each	1242.0	6.2	1.5
52	Tele. Local Call	Call	3.9	0.0	0.0
53	Bath Soap Lifebouy (Standard)	Cake	41.8	13.4	0.0
Maximum				151.8	24.4
Median				2.2	0.0
Minimum				-44.5	-7.5

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

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

Items and specification	Weights	Index		
		Nov-16	Oct-17	Nov-17
General	100.00	212.01	219.61	220.42
Food & Non-Alcoholic Beverages.	34.83	228.74	235.69	236.61
1 Wheat	0.35	203.78	197.74	200.97
2 Wheat Flour	4.16	212.30	207.43	211.55
3 Wheat Product	0.10	217.35	213.11	213.19
4 Besan	0.15	346.57	280.66	280.28
5 Rice	1.58	160.23	182.85	182.82
6 Cereals	0.16	251.74	257.39	257.56
7 Bakery & Confectionary	1.16	216.46	219.29	221.90
8 Nimco	0.46	250.65	256.68	256.90
9 Meat	2.43	266.48	284.72	285.83
10 Chicken	1.36	174.63	151.20	154.15
11 Fish	0.30	215.91	214.23	217.74
12 Milk Fresh	6.68	267.15	277.04	277.08
13 Milk Product	0.63	257.33	268.10	268.37
14 Milk Powder	0.11	237.27	235.75	236.83
15 Eggs	0.46	241.93	209.55	273.24
16 Mustard Oil	0.10	155.96	161.44	161.96
17 Cooking Oil	1.75	134.00	138.35	138.58
18 Vegetable Ghee	2.07	138.42	143.26	143.68
19 Dry Fruits	0.25	265.00	265.47	269.66
20 Fresh Fruits	1.86	211.10	235.56	224.34
21 Pulse Masoor	0.27	211.28	172.34	168.46
22 Pulse Moong	0.23	278.74	231.93	222.21
23 Pulse Mash (Washed)	0.21	335.28	255.52	242.09
24 Pulse Gram	0.24	377.06	275.63	269.96
25 Gram Whole	0.16	313.13	297.03	296.37
26 Beans	0.03	231.13	244.14	242.81
27 Potatoes	0.46	295.55	273.63	289.11
28 Onion	0.52	166.58	491.92	478.11
29 Tomatoes	0.43	168.62	337.71	349.90
30 Fresh Vegetables	1.71	307.50	287.98	287.30
31 Sugar	1.04	260.56	197.79	193.86
32 Gur	0.02	281.47	263.15	259.06
33 Honey	0.04	316.04	334.28	338.91
34 Sweet Meet	0.25	245.39	253.94	254.71
35 Beverages	1.20	219.50	226.52	226.48
36 Jam, Tomato Ketchup & Pickle	0.25	216.26	221.97	223.06
37 Condiments	0.27	265.31	273.37	273.73
38 Spices	0.54	239.32	239.11	239.01
39 Tea	0.84	256.46	283.79	283.98
Alcoholic Beverages, Tobacco	1.41	365.33	305.31	305.51
40 Cigarettes	1.39	367.34	306.09	306.09
41 Betel Leaves & Nuts	0.02	243.10	258.40	270.67
Clothing & Footwear	7.57	232.18	239.94	241.01
42 Cotton Cloth	1.73	225.35	233.43	234.28
43 Woolen Cloth	0.88	250.42	258.28	259.17
44 Ready Made Garments	0.97	238.62	248.07	248.53
45 Woolen Readymade Garments	0.40	260.39	259.47	263.43
46 Hosiery	0.51	244.86	252.12	252.67
47 Dopatta	0.44	241.74	246.72	248.38
48 Cleaning & Laundering	0.21	257.02	272.90	273.92

Table A10: Consumer Price Index Numbers by Major Groups and Composite Commodities					
Items and specification		Weights	Index		
			Nov-16	Oct-17	Nov-17
49	Tailoring	0.88	304.47	325.55	328.50
50	Footware	1.55	166.74	167.50	167.51
Housing, Water, Elect, Gas & Other Fuel		29.41	191.64	200.90	200.94
51	House Rent	21.81	182.22	194.05	194.05
52	Construction Input Item	0.56	248.60	257.07	257.16
53	Construction Wage Rate	0.33	232.60	246.85	248.82
54	Water Supply	0.50	164.74	171.58	171.58
55	Electricity	4.40	238.10	238.10	238.10
56	Gas	1.58	158.08	158.08	158.08
57	Kerosene Oil	0.01	195.93	206.26	215.98
58	Fire Wood Whole	0.23	286.97	293.20	295.15
Furnished H.Hold Equip. & Maint. Etc		4.21	223.21	229.47	230.52
59	Furniture	0.33	214.48	221.60	223.87
60	Household Textile	0.65	224.66	232.05	233.22
61	Household Equipment	0.59	179.18	183.44	183.57
62	Utensils	0.32	225.32	235.07	236.75
63	Plastic Products	0.25	207.64	213.86	215.02
64	Washing Soap & Detergent	0.79	229.75	233.12	233.40
65	Sewing Needle & Dry Cell	0.15	201.34	209.49	209.80
66	Household Servant	1.04	249.98	257.30	258.89
67	Marriage Hall Charges	0.08	243.87	249.20	249.98
Health		2.19	195.28	214.27	214.79
68	Drug Medicine	1.27	161.86	185.84	186.14
69	Medical Equipment	0.01	246.00	253.63	253.69
70	Doctor (MBBS) Clinic Fee	0.59	269.50	282.22	282.22
71	Medical Test	0.32	189.39	200.53	202.91
Transport		7.20	170.65	177.05	178.51
72	Motor Vehicle	0.66	171.44	177.56	177.84
73	Motor Vehicle Accessories	0.24	213.96	214.38	214.98
74	Motor Fuel	3.03	136.75	149.58	152.90
75	Mechanical Service	0.46	227.84	232.74	233.00
76	Motor Vehicle Tax	0.11	210.18	210.18	210.18
77	Transport Services	2.70	193.28	193.59	193.59
Communication		3.22	131.52	133.10	133.14
78	Postal Services	0.07	244.70	251.59	253.38
79	Communication & Apparatus	3.15	129.15	130.61	130.62
Recreation & Culture		2.02	196.40	196.83	197.14
80	Recreation & Culture	0.86	129.92	129.49	130.03
81	Text Books	0.57	292.41	287.98	287.98
82	News Papers	0.19	175.49	184.01	184.40
83	Stationery	0.40	213.25	218.60	218.82
Education		3.94	233.40	258.75	262.35
84	Education	3.94	233.40	258.75	262.35
Restaurants And Hotels		1.23	267.68	283.85	284.76
85	Ready Made Food	1.23	267.68	283.85	284.76
Miscellaneous Goods And Services		2.76	238.33	249.67	252.27
86	Personal Care	1.49	218.97	231.11	231.98
87	Cosmetics	0.39	201.04	206.22	206.64
88	Blades	0.03	195.66	197.94	200.95
89	Personal Equipments	0.84	291.24	304.32	310.95

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

Items and Specifications	Index		
	Nov-16	Oct-17	Nov-17
General	214.07	219.41	220.20
Agriculture Forestry & Fishery	242.47	254.45	252.96
1 Wheat	211.20	200.05	205.94
2 Maize	191.32	191.03	192.98
3 Rice	148.65	169.62	167.04
4 Sorghum/Jowar	242.91	216.04	216.66
5 Millet/Bajra	171.85	160.38	169.49
6 Vegetables	295.08	431.44	382.44
7 Fresh Fruits	202.51	257.11	215.99
8 Dry Fruits	244.77	243.99	248.97
9 Cotton Seeds	260.78	260.64	254.01
10 Other Oil Seeds	177.55	190.07	194.39
11 Edible Roots/ Potatoes	281.67	266.89	271.08
12 Stimulant And Spice Crops	216.85	292.37	281.17
13 Pulses	312.67	263.60	260.73
14 Sugar Crops	266.42	268.94	268.94
15 Fibre Crops	197.33	198.59	208.95
16 Unmanufactured Tobacco	265.84	296.90	297.10
17 Poultry	178.62	178.79	157.76
18 Milk From Bovine Animals	267.02	272.70	272.70
19 Eggs	251.78	213.03	288.96
20 Raw Animal Material/Wool	173.89	173.18	173.53
21 Hides And Fur Skins, Raw	122.98	103.25	103.77
22 Fuel Wood In Logs	269.14	282.69	282.69
23 Fishes Live Fresh Or Chilled	447.65	450.77	457.89
Ores/Minerals, Gas & Elect.	242.44	242.97	243.05
24 Coal Not Agglomerated	155.29	155.29	155.29
25 Natural Gas Liquefied	210.34	211.29	211.46
26 Salt & Pure Sodium Chloride	231.97	248.46	248.46
27 Electrical Energy	288.00	288.00	288.00
Food, Beverages, Tobacco, Textiles	225.93	226.01	227.21
28 Meat Of Animals	279.82	306.11	306.11
29 Vegetables & Fruit Juices	211.47	224.22	224.22
30 Dried Fruits & Nuts	250.67	269.70	281.80
31 Fruit Juices	184.03	182.53	182.53
32 Vegetable Oil Refined	151.24	155.12	154.34
33 Vegetable Ghee	123.44	125.78	126.25
34 Oil Cakes	227.22	222.38	228.88
35 Processed Liquid Milk	257.57	284.79	286.83
36 Milk And Cream In Solid Form	220.54	224.08	223.74
37 Ice Cream	238.04	266.02	266.02
38 Dairy Products N.E.C	252.52	264.15	264.68
39 Wheat Flour	196.86	189.87	195.25
40 Other Cereal Flour	327.54	226.42	226.05
41 Sugar Refined	272.80	204.64	202.58
42 Chocolate	99.45	100.00	100.00
43 Sugar Confectionary	128.15	128.44	128.44
44 Coffee And Tea	232.40	253.21	253.35
45 Spices	190.38	202.06	201.96
46 Other Food Products	293.85	294.50	294.50
47 Mineral Water	197.57	208.51	207.93
48 Beverages	172.33	172.85	172.85
49 Tobacco Products	435.03	318.37	318.37
50 Cotton Yarn	191.63	202.18	204.94
51 Nylon Yarn	143.99	143.99	143.99
52 Blended Yarn	179.94	184.65	186.96
53 Woven Fabrics	286.46	316.28	316.28
54 Cotton Fabrics	209.09	211.50	211.50
55 Other Fabrics	224.94	227.16	227.16

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Table A11: Wholesale Price Index Numbers by Major Groups and Composite Commodities				
Items and Specifications		Index		
		Nov-16	Oct-17	Nov-17
56	Silk And Rayon Fabrics	191.76	188.14	188.14
57	Towels	271.17	276.14	276.14
58	Blankets	247.52	247.38	257.93
59	Bed Sheets	257.96	256.87	256.87
60	Quilts	203.79	222.32	222.32
61	Woolen Carpets	196.43	196.43	196.43
62	Synthetic Carpets	129.25	130.95	130.95
63	Hosiery Products	241.05	244.11	244.11
64	Ready Made Garments	200.44	201.37	201.37
65	Leather With Out Hairs	229.40	221.97	212.68
66	Other Leather N.E.C	207.31	207.31	207.02
67	Footwear's	145.51	145.51	145.51
Other Transportable Goods		165.19	173.59	176.98
68	Timber	224.68	231.53	231.53
69	Printing Paper	164.90	166.31	166.45
70	Hard Board	197.92	225.00	225.00
71	Coke	163.45	163.45	163.45
72	Motor Sprit	108.54	124.14	128.35
73	Diesel Oil	144.34	155.86	166.05
74	Kerosene Oil	115.11	127.80	141.66
75	Furnace Oil	92.32	110.73	112.15
76	Mobil Oil	195.35	200.23	200.62
77	Chemicals	175.41	177.12	179.89
78	Dying Materials	146.55	146.55	146.55
79	Fertilizers	216.35	216.49	220.00
80	Pesticides	308.75	306.92	307.23
81	Insecticides	135.98	138.62	137.12
82	Paints & Varnishes	295.36	299.42	299.42
83	Medicines	168.53	176.89	176.89
84	Soaps & Detergent	187.81	191.45	191.45
85	Auto Tyres	177.38	177.07	177.07
86	Plastic Products	225.73	225.88	226.00
87	Glass Sheets	283.21	298.97	302.27
88	Other Glass Articles	299.07	317.24	318.10
89	Ceramics And Sanitary	234.18	232.65	232.65
90	Bricks Blocks And Tiles	219.15	222.47	223.21
91	Cement	212.63	217.15	212.69
92	Bed Foams	164.33	170.33	170.33
93	Matches	162.62	171.36	171.36
Metal Product Machinery & Equip		174.10	177.34	177.63
94	Pig Iron	128.97	128.97	128.97
95	Steel Bars & Sheets	126.37	139.70	140.75
96	Pipe Fittings	193.63	215.66	215.66
97	Steel Products	177.38	179.41	176.70
98	Engines And Motors	128.30	116.98	116.98
99	Vacuum Pumps	133.32	123.69	123.69
100	Air Conditioners	201.18	200.10	200.10
101	Cultivators	190.66	190.66	190.66
102	Chuff Cutter	153.46	153.46	153.46
103	Tractors	201.75	201.75	201.75
104	Lathe Machines	241.06	241.06	241.06
105	Concrete Mixer	138.83	138.83	138.83
106	Refrige,Wash& Sew Mach, Iron,Fan	204.01	214.97	216.72
107	Electrical Wires	200.83	205.92	205.92
108	Lighting Equipments	172.50	170.98	170.98
109	Radio And Television	140.42	140.42	140.42
110	Motor Vehicles	191.39	195.36	195.36
111	Motor Cycles	125.89	125.89	126.05
112	Bicycles	188.81	187.65	187.65

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

Period		CPI			WPI			SPI *
		Overall	Food	Non-food	Overall	Food	Non-Food	
2008-09		117.03	123.11	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	233.37	199.65	216.02	248.74	195.27	220.10
2015	Jul	201.76	224.14	188.35	209.53	233.68	194.20	215.13
	Aug	202.25	224.86	188.70	208.42	236.00	190.92	214.33
	Sep	202.04	223.87	188.95	207.60	234.37	190.61	215.23
	Oct	203.03	224.86	189.95	208.69	234.47	192.34	217.02
	Nov	204.22	227.55	190.23	208.72	232.83	193.43	219.37
	Dec	203.06	223.90	190.57	207.37	230.72	192.55	218.60
2016	Jan	203.49	222.58	192.05	206.27	231.14	190.48	217.47
	Feb	202.98	221.07	192.14	205.05	231.26	188.42	215.73
	Mar	203.28	222.25	191.91	204.22	231.43	186.95	215.13
	Apr	206.43	227.53	193.78	206.87	237.05	187.72	215.88
	May	205.99	225.84	194.09	208.01	238.62	188.59	214.35
	Jun	207.30	228.95	194.32	210.88	244.68	189.44	216.58
	Jul	210.08	234.69	195.33	215.81	251.76	192.99	218.81
	Aug	209.46	232.48	195.66	215.75	250.12	193.95	218.66
	Sep	209.88	232.80	196.14	214.61	250.41	191.89	218.67
	Oct	211.57	234.68	197.72	214.53	250.63	191.64	220.11
	Nov	212.01	235.17	198.13	214.07	247.89	192.62	220.68
	Dec	210.57	230.69	198.51	213.76	244.40	194.32	219.73
2017	Jan	210.94	228.45	200.44	214.84	244.73	195.87	218.35
	Feb	211.54	229.19	200.96	215.86	244.91	197.42	219.25
	Mar	213.32	233.47	201.24	217.29	247.53	198.10	223.62
	Apr	216.30	237.50	203.59	219.22	252.45	198.13	222.07
	May	216.33	237.01	203.94	218.78	251.10	198.26	220.51
	Jun	215.45	234.37	204.11	217.77	248.90	198.02	220.68
	Jul	216.19	234.47	205.23	217.24	249.95	196.63	219.28
	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

*: all groups combined

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

Table 14: CPI Data Series Original and Seasonally Adjusted					
Original Series					
Period	FY14	FY15	FY16	FY17	FY18
Jul	183.58	198.05	201.76	210.08	216.19
Aug	185.71	198.70	202.25	209.46	216.61
Sep	185.18	199.40	202.04	209.88	217.98
Oct	188.82	199.81	203.03	211.57	219.61
Nov	191.21	198.79	204.22	212.01	220.42
Dec	188.68	196.79	203.06	210.57	
Jan	189.60	196.95	203.49	210.94	
Feb	189.00	195.13	202.98	211.54	
Mar	190.82	195.57	203.28	213.32	
Apr	194.06	198.16	206.43	216.30	
May	193.55	199.66	205.99	216.33	
Jun	194.74	200.89	207.30	215.45	
Seasonally Adjusted Series					
Jul	182.72	197.08	200.76	209.03	215.12
Aug	184.43	197.42	201.03	208.23	215.41
Sep	184.00	198.15	200.84	208.69	216.81
Oct	187.33	198.26	201.50	210.02	218.02
Nov	190.02	197.59	203.02	210.76	219.13
Dec	189.70	197.82	204.06	211.55	
Jan	190.25	197.67	204.28	211.82	
Feb	190.98	197.18	205.10	213.73	
Mar	192.43	197.23	205.03	215.16	
Apr	193.88	197.94	206.18	215.99	
May	193.96	200.00	206.28	216.60	
Jun	195.34	201.43	207.77	215.88	

Table 15: CPI Food Data Series Original and Seasonally Adjusted					
Original Series					
Period	FY14	FY15	FY16	FY17	FY18
Jul	208.19	222.80	224.14	234.69	234.47
Aug	212.27	224.05	224.86	232.48	235.38
Sep	209.09	224.12	223.87	232.80	238.43
Oct	212.61	223.74	224.86	234.68	239.89
Nov	218.16	222.74	227.55	235.17	240.79
Dec	210.89	218.08	223.90	230.69	
Jan	210.81	217.10	222.58	228.45	
Feb	208.74	213.15	221.07	229.19	
Mar	213.11	214.25	222.25	233.47	
Apr	217.33	217.26	227.53	237.50	
May	214.75	221.22	225.84	237.01	
Jun	216.98	223.84	228.95	234.37	
Seasonally Adjusted Series					
Jul	206.52	220.91	222.18	232.61	232.40
Aug	209.23	221.01	221.95	229.55	232.54
Sep	206.12	220.97	220.80	229.75	235.41
Oct	209.28	220.33	221.53	231.35	236.54
Nov	214.80	219.36	224.20	231.72	237.23
Dec	212.59	219.76	225.47	232.17	
Jan	212.75	219.25	224.96	231.13	
Feb	213.53	218.09	226.17	234.46	
Mar	216.25	217.44	225.57	236.92	
Apr	217.72	217.61	227.84	237.70	
May	216.02	222.35	226.88	238.01	
Jun	218.30	224.95	229.87	235.13	

Table 16: CPI Monthly & Average Seasonal Factors

Period	FY14	FY15	FY16	FY17	FY18	Average
Jul	100.47	100.49	100.50	100.50	100.50	100.49
Aug	100.69	100.65	100.61	100.59	100.56	100.62
Sep	100.64	100.63	100.60	100.57	100.54	100.60
Oct	100.80	100.78	100.76	100.74	100.73	100.76
Nov	100.62	100.61	100.59	100.59	100.59	100.60
Dec	99.46	99.48	99.51	99.54		99.50
Jan	99.66	99.64	99.61	99.58		99.62
Feb	98.96	98.96	98.97	98.98		98.97
Mar	99.16	99.16	99.15	99.14		99.15
Apr	100.09	100.11	100.12	100.14		100.12
May	99.79	99.83	99.86	99.87		99.84
Jun	99.69	99.73	99.77	99.80		99.75

Table 17: CPI Food Monthly & Average Seasonal Factors

Period	FY14	FY15	FY16	FY17	FY18	Average
Jul	100.81	100.86	100.88	100.90	100.89	100.87
Aug	101.45	101.37	101.31	101.28	101.22	101.33
Sep	101.44	101.43	101.39	101.33	101.28	101.37
Oct	101.59	101.55	101.51	101.44	101.42	101.50
Nov	101.56	101.54	101.49	101.49	101.50	101.52
Dec	99.20	99.24	99.30	99.36		99.28
Jan	99.09	99.02	98.94	98.84		98.97
Feb	97.76	97.74	97.74	97.75		97.75
Mar	98.55	98.53	98.53	98.55		98.54
Apr	99.82	99.84	99.87	99.92		99.86
May	99.41	99.49	99.54	99.58		99.51
Jun	99.40	99.51	99.60	99.68		99.54

Table 18: CPI Month-on-Month % Change Original & Seasonally Adjusted					
Original Series					
Period	FY14	FY15	FY16	FY17	FY18
Jul	2.02	1.70	0.43	1.34	0.34
Aug	1.16	0.33	0.24	-0.30	0.19
Sep	-0.29	0.35	-0.10	0.20	0.63
Oct	1.97	0.21	0.49	0.81	0.75
Nov	1.27	-0.51	0.59	0.21	0.37
Dec	-1.32	-1.01	-0.57	-0.68	
Jan	0.49	0.08	0.21	0.18	
Feb	-0.32	-0.92	-0.25	0.28	
Mar	0.96	0.23	0.15	0.84	
Apr	1.70	1.32	1.55	1.40	
May	-0.26	0.76	-0.21	0.01	
Jun	0.61	0.62	0.64	-0.41	
Seasonally Adjusted Series					
Jul	1.20	0.89	-0.33	0.60	-0.35
Aug	0.94	0.17	0.13	-0.38	0.14
Sep	-0.24	0.37	-0.10	0.22	0.65
Oct	1.81	0.06	0.33	0.63	0.56
Nov	1.44	-0.34	0.75	0.35	0.51
Dec	-0.17	0.12	0.51	0.37	
Jan	0.29	-0.08	0.11	0.13	
Feb	0.38	-0.25	0.40	0.90	
Mar	0.76	0.03	-0.03	0.67	
Apr	0.75	0.36	0.56	0.39	
May	0.04	1.04	0.05	0.28	
Jun	0.71	0.71	0.72	-0.33	

Table 19: CPI Food Month-on-Month % Change Original & Seasonally Adjusted					
Original Series					
Period	FY14	FY15	FY16	FY17	FY18
Jul	3.01	2.68	0.13	2.50	0.04
Aug	1.96	0.56	0.32	-0.94	0.39
Sep	-1.50	0.03	-0.44	0.14	1.29
Oct	1.68	-0.17	0.44	0.81	0.61
Nov	2.61	-0.45	1.20	0.21	0.37
Dec	-3.33	-2.09	-1.61	-1.90	
Jan	-0.04	-0.45	-0.59	-0.97	
Feb	-0.98	-1.82	-0.68	0.32	
Mar	2.10	0.52	0.54	1.87	
Apr	1.98	1.41	2.38	1.73	
May	-1.19	1.82	-0.74	-0.21	
Jun	1.04	1.18	1.38	-1.11	
Seasonally Adjusted Series					
Jul	1.47	1.20	-1.23	1.19	-1.16
Aug	1.32	0.05	-0.10	-1.32	0.06
Sep	-1.49	-0.02	-0.52	0.09	1.24
Oct	1.53	-0.29	0.33	0.70	0.48
Nov	2.64	-0.44	1.21	0.16	0.29
Dec	-1.03	0.18	0.57	0.19	
Jan	0.07	-0.23	-0.23	-0.45	
Feb	0.37	-0.53	0.54	1.44	
Mar	1.27	-0.30	-0.27	1.05	
Apr	0.68	0.08	1.00	0.33	
May	-0.78	2.18	-0.42	0.13	
Jun	1.06	1.17	1.32	-1.21	



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

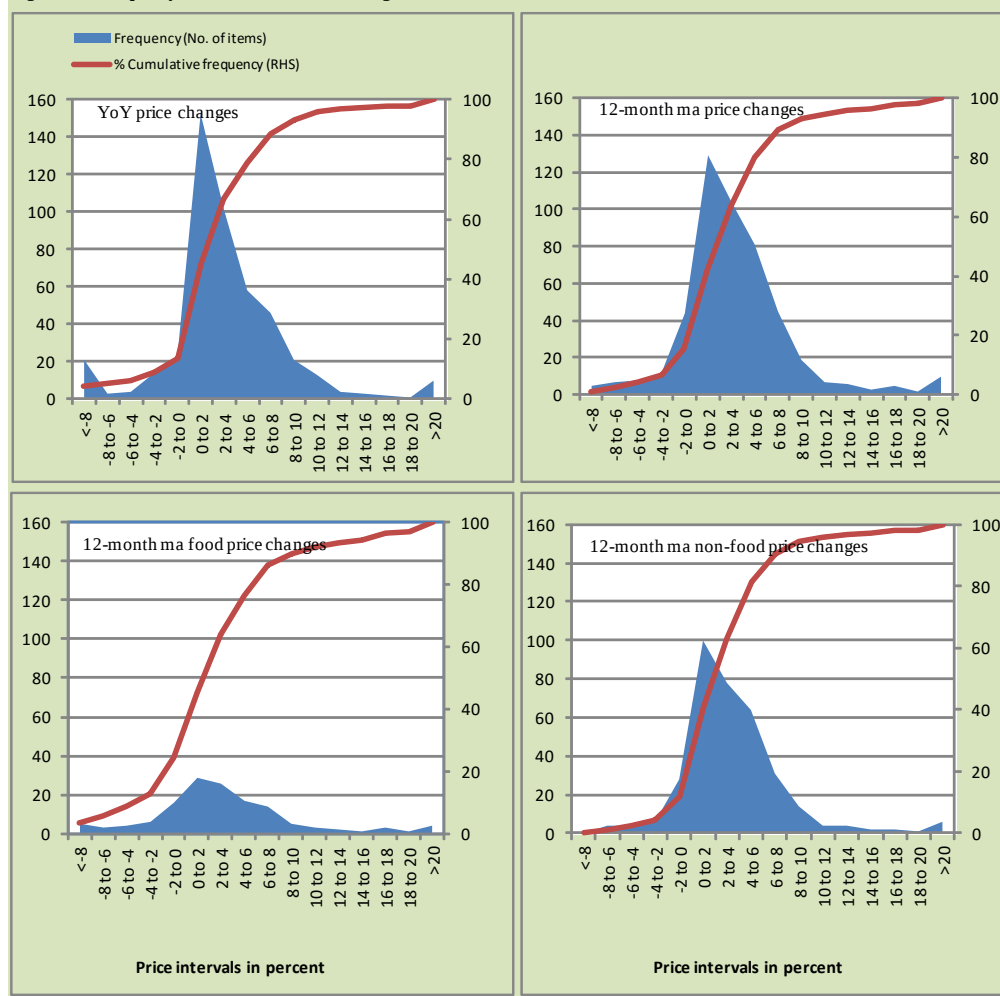


Figure A3: Frequency Distribution of Price Changes of WPI Commodities, November 2017

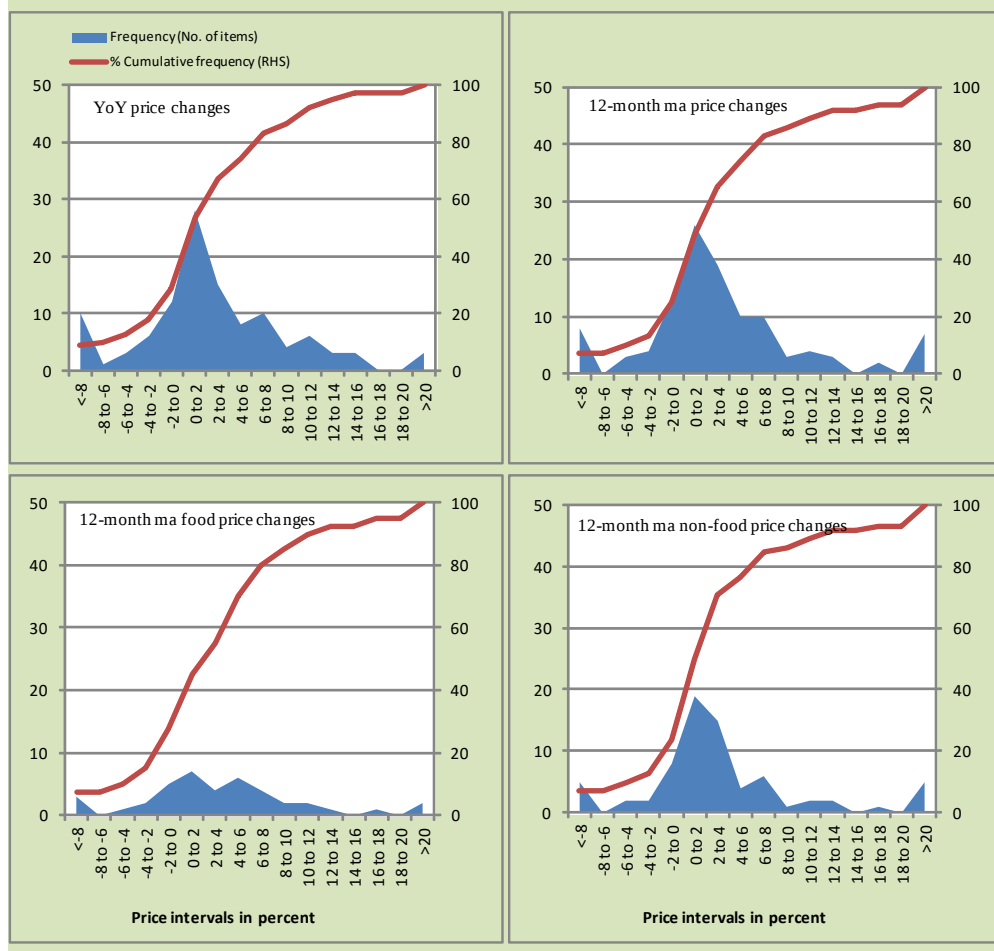
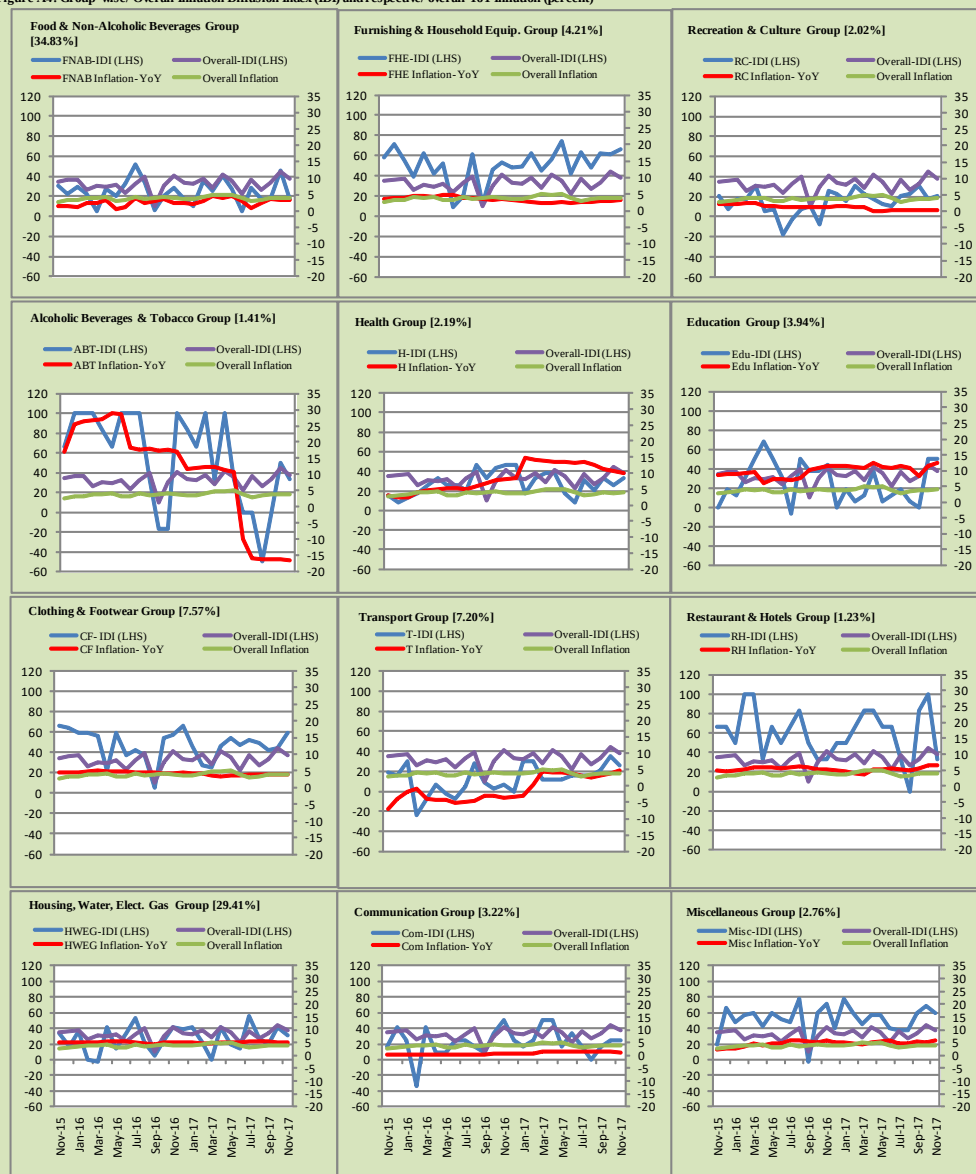


Figure A4: Group-wise/ Overall Inflation Diffusion Index (IDI) and respective/ overall YoY Inflation (percent)



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

Annexure B

Technical Notes

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Where C_{it} : Contribution of i^{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.