

Inflation Monitor

February 2020

(New Base: 2015-16)



State Bank of Pakistan

Statistics & DWH Department

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Team

- Mazhar Hussain Sr. Joint Director
mazhar.hussain@sbp.org.pk
- Muhammad Abdus Salam Joint Director
muhammad.abdussalam@sbp.org.pk

Review

1. Inflation in Brief

- a) National CPI inflation (2015-16=100) is recorded at 12.4 percent on year-on-year basis in February 2020 as compared to 14.6 percent in the previous month and 6.8 percent during the corresponding month of last year.
- b) National CPI inflation on month-on-month basis is recorded at -1.0 percent in February 2020 as compared to 2.0 percent in the previous month and 0.9 percent during the corresponding month of last year. Seasonally adjusted month-on-month CPI inflation is recorded at -0.53 percent in February 2020 compared to 2.08 percent in the previous month.
- c) Urban CPI inflation (2015-16=100) is recorded at 11.2 percent on year-on-year basis in February 2020 as compared to 13.4 percent in the previous month and 7.2 percent during the corresponding month of last year.
- d) Urban CPI inflation on month-on-month basis is recorded at -1.1 percent in February 2020 as compared to 1.7 percent in the previous month and 0.9 percent during the corresponding month of last year. Seasonally adjusted month-on-month Urban CPI inflation is recorded at -0.59 percent in February 2020 compared to 1.64 percent in the previous month.
- e) Rural CPI inflation (2015-16=100) is recorded at 14.2 percent on year-on-year basis in February 2020 as compared to 16.3 percent during the previous month. It was 6.0 percent during the corresponding month of last year.
- f) Rural CPI inflation on month-on-month basis is recorded at -1.0 percent in February 2020 as compared to 2.4 percent in the previous month and 0.9 percent during the corresponding month of last year. Seasonally adjusted month-on-month Rural CPI inflation is recorded at -0.46 percent in February 2020 compared to 2.75 percent in the previous month.

- g) Urban Core inflation (trimmed) on year-on-year basis is recorded at 9.7 percent in February 2020 as compared to 10.3 percent in the previous month and 6.7 percent during the corresponding month of last year.
- h) On month-on-month basis, the Urban Core inflation (trimmed) is recorded at 0.1 percent in February 2020 as compared to 1.2 percent in the previous month and 0.2 percent during the corresponding month of last year.
- i) Rural Core inflation (trimmed) on year-on-year basis is recorded at 12.8 percent in February 2020 as compared to 12.7 percent in the previous month and 6.2 percent during the corresponding month of last year.
- j) On month-on-month basis, the Rural Core inflation (trimmed) is recorded at 0.6 percent in February 2020 as compared to 1.9 percent in the previous month and 0.3 percent during the corresponding month of last year.
- k) Urban Core (Non-food, non-energy (NFNE)) inflation on year-on-year basis is recorded at 8.0 percent in February 2020 as compared to 7.9 percent in the previous month. It was 7.1 percent during the corresponding month of last year.
- l) Urban Core (NFNE) inflation on month-on-month basis recorded at 0.2 percent in February 2020 as compared to 1.1 percent in the previous month and was at same level during the corresponding month of last year.
- m) Rural Core (NFNE) inflation on year-on-year basis is recorded at 9.4 percent in February 2020 as compared to 9.0 percent in the previous month and 6.4 percent during the corresponding month of last year.
- n) Rural Core (NFNE) inflation on month-on-month basis recorded at 0.5 percent in February 2020 as compared to 1.0 percent in the previous month and 0.2 percent during the corresponding month of last year.

- o) WPI inflation on year-on-year basis recorded at 12.6 percent in February 2020 as compared to 15.4 percent in the previous month and 13.9 percent during the corresponding month of last year.
- p) WPI inflation on month-on-month basis recorded at -0.8 percent in February 2020 as compared to 1.8 percent in the previous month. It was 1.6 percent in the corresponding month of last year.
- q) SPI inflation on year-on-year basis recorded at 16.1 percent in February 2020 as compared to 19.5 percent in the previous month. It was 8.9 percent in the corresponding month of last year.
- r) SPI inflation on month-on-month basis recorded at -0.9 percent in February 2020 as compared to 1.0 percent in the previous month. It was 2.0 percent in the corresponding month of last year.

2. Heat-maps of CPI inflation

The heat map visually elaborates the evolution of inflation. A heat-map for National, Urban and Rural CPI inflation (YoY) and their important sub-indexes for the time span of last thirteen months is presented. The inflation is compared with the benchmark of medium term inflation target of 6 percent and 0.75 percent on YoY and MoM basis, respectively. Greener areas indicates low inflation pressures and increasing order of red (light to dark color spectrum i.e. light green to orange to brown to red) represents higher and higher inflationary pressures.

		Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
Headline	National	6.7	8.6	8.3	8.4	8.0	8.4	10.5	11.4	11.0	12.7	12.6	14.6	12.4
	Urban	7.2	8.9	8.4	8.5	8.1	8.7	10.6	11.6	10.9	12.1	12.0	13.4	11.2
	Rural	6.0	8.2	8.1	8.3	7.9	7.9	10.3	11.1	11.3	13.6	13.6	16.3	14.2
Food	Urban	5.9	8.8	8.3	9.0	7.5	7.9	11.9	15.0	13.7	16.6	16.7	19.5	15.2
	Rural	5.2	9.3	9.3	9.7	9.1	9.3	12.6	15.0	14.6	19.3	19.7	23.8	19.7
Core	Urban	7.1	7.2	7.0	7.2	7.3	8.2	8.5	8.4	7.7	7.5	7.5	7.9	8.0
	Rural	6.4	6.5	6.8	6.8	6.7	7.8	8.8	8.9	8.6	8.4	8.1	9.0	9.4

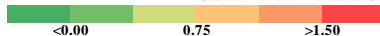
Source: Pakistan Bureau of Statistics and SBP staff estimates

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Heat-map of National, Urban and Rural CPI inflation (MoM)														
		Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
Headline	National	0.9	2.0	0.7	0.6	0.5	1.8	1.6	0.8	1.8	1.3	-0.3	2.0	-1.0
	Urban	0.9	1.9	0.8	0.7	0.3	2.0	1.5	0.7	1.6	1.0	-0.4	1.7	-1.1
	Rural	0.9	2.2	0.6	0.5	0.7	1.6	1.9	0.8	2.2	1.9	-0.3	2.4	-1.0
Food	Urban	2.3	2.5	1.3	1.3	-0.3	1.0	3.1	2.0	1.4	2.4	-1.7	2.7	-1.4
	Rural	1.7	3.3	0.6	0.6	0.7	1.7	2.9	1.8	2.6	3.4	-1.1	3.4	-1.6
Core	Urban	0.2	0.8	1.1	0.5	0.2	1.8	0.4	0.4	0.5	0.3	0.4	1.1	0.2
	Rural	0.2	0.6	1.2	0.4	0.3	2.0	1.0	0.3	0.7	0.5	0.3	1.0	0.5

Source: Pakistan Bureau of Statistics and SBP staff estimates



Heat-map of National CPI inflation (YoY)														
	Weights	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
National	100.00	6.7	8.6	8.3	8.4	8.0	8.4	10.5	11.4	11.0	12.7	12.6	14.6	12.4
Food and non-alcoholic Beverages	34.58	5.4	9.4	9.1	9.9	8.4	8.3	12.6	15.8	15.0	19.4	19.7	23.7	18.4
Alcoholic Beverages, Tobacco	1.02	14.3	12.7	11.7	11.9	17.3	29.3	29.8	30.0	20.3	18.7	18.3	17.9	18.5
Clothing and footwear	8.60	6.4	6.7	6.4	6.9	6.4	7.5	8.9	8.9	9.3	9.4	9.7	9.6	10.1
Housing, water, Elec., Gas and other fuels	23.63	7.9	10.1	8.1	6.5	6.9	6.1	7.1	6.6	7.2	8.8	8.5	9.6	6.8
Furnishing and household equipment maintenance	4.10	8.6	8.8	9.1	9.1	9.3	11.0	11.6	11.7	11.3	10.8	10.4	10.1	10.0
Health	2.79	6.1	6.3	8.1	8.7	9.4	11.6	11.9	11.7	12.2	11.4	11.3	11.8	12.0
Transport	5.91	10.4	9.6	13.7	17.8	17.2	16.8	18.5	17.8	16.5	14.0	14.7	18.6	19.2
Communication	2.21	2.0	2.0	4.1	4.0	4.1	4.3	4.3	4.3	4.0	4.0	4.0	4.0	3.9
Recreation and culture	1.59	6.7	7.3	5.7	5.5	5.5	7.1	7.7	7.8	7.4	6.8	6.8	6.5	6.6
Education	3.79	6.4	6.9	5.4	5.9	5.8	6.8	6.9	6.2	6.0	6.1	6.0	7.3	7.4
Restaurants and hotels	6.92	4.8	5.0	5.0	4.2	4.0	5.8	6.2	6.1	6.0	6.4	6.1	7.4	8.7
Misc. goods and services	4.87	9.0	9.2	8.9	8.6	9.4	10.8	13.2	13.4	12.5	11.8	10.7	11.4	11.4

Source: Pakistan Bureau of Statistics and SBP staff estimates



Heat-map of Urban CPI inflation (YoY)														
	Weights	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
Urban	100.00	7.2	8.9	8.4	8.5	8.1	8.7	10.6	11.6	10.9	12.1	12.0	13.4	11.2
Food and non-alcoholic Beverages	30.42	5.9	9.4	8.7	9.7	7.7	7.7	12.6	16.3	15.0	18.6	18.8	22.0	16.4
Alcoholic Beverages, Tobacco	0.85	14.6	11.4	10.9	10.8	16.3	28.4	28.5	28.7	18.5	16.7	16.6	16.8	17.7
Clothing and footwear	8.01	5.9	6.5	5.8	7.0	6.8	7.5	9.1	9.0	9.0	9.1	9.6	9.0	9.6
Housing, water, Elec., Gas and other fuels	27.03	8.5	10.7	8.8	7.2	7.6	7.9	8.6	8.4	8.2	9.6	9.4	9.7	6.9
Furnishing and household equipment maintenance	4.09	9.2	9.4	9.8	10.2	10.5	12.3	12.4	12.5	11.6	11.2	11.0	10.4	10.0
Health	2.31	5.8	5.7	7.7	8.5	9.0	12.1	11.7	11.1	11.2	10.5	10.9	11.5	11.7
Transport	6.14	11.0	10.3	14.5	18.2	17.4	17.5	19.0	18.6	17.5	15.0	15.6	19.4	19.9
Communication	2.35	2.4	2.5	5.3	5.2	5.2	5.7	5.5	5.6	5.2	5.1	5.3	5.3	5.3
Recreation and culture	1.73	6.5	7.2	5.1	5.1	5.3	6.8	7.5	7.7	6.7	6.5	6.4	6.1	6.1
Education	4.88	7.0	7.2	5.7	6.4	6.4	7.3	7.4	6.4	6.2	6.3	6.3	7.5	7.5
Restaurants and hotels	7.41	5.0	5.4	5.2	4.5	4.5	5.4	5.0	5.0	4.9	5.2	4.9	6.5	7.7
Misc. goods and services	4.77	9.8	10.0	9.3	8.8	9.7	10.8	12.6	13.1	12.0	11.0	10.1	10.7	10.1

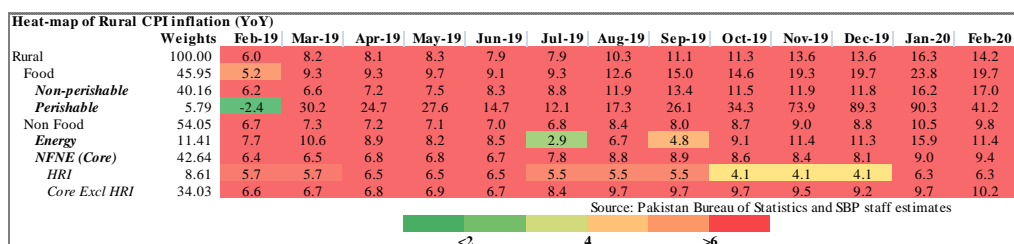
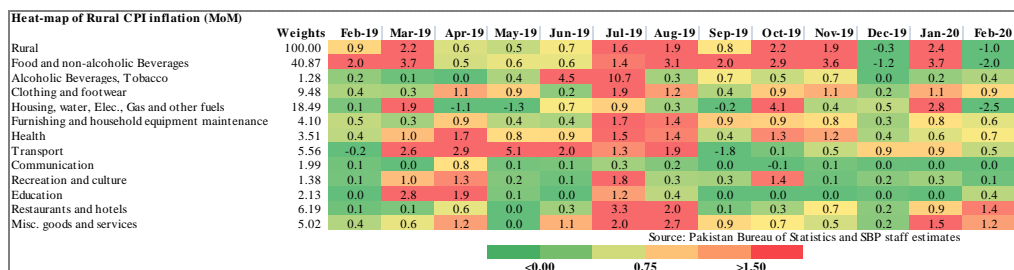
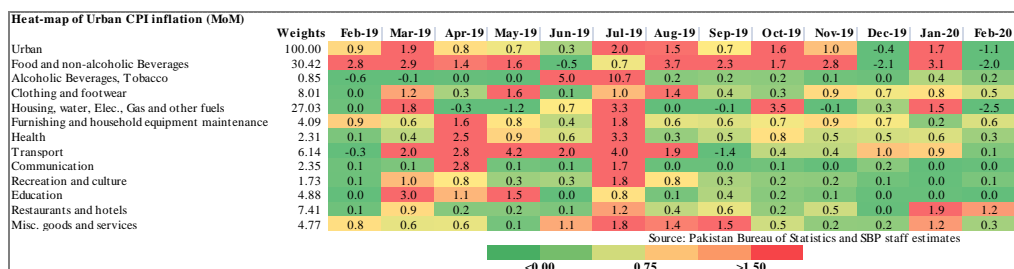
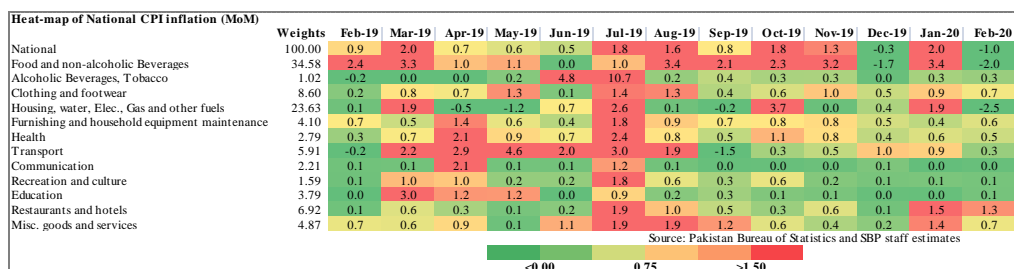
Source: Pakistan Bureau of Statistics and SBP staff estimates



Heat-map of Rural CPI inflation (YoY)														
	Weights	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
Rural	100.00	6.0	8.2	8.1	8.3	7.9	7.9	10.3	11.1	11.3	13.6	13.6	16.3	14.2
Food and non-alcoholic Beverages	40.87	4.8	9.5	9.5	10.1	9.3	8.9	12.6	15.3	15.1	20.3	20.8	25.5	20.6
Alcoholic Beverages, Tobacco	1.28	14.0	14.2	12.6	13.3	18.4	30.4	31.3	31.4	22.4	21.0	20.2	19.2	19.4
Clothing and footwear	9.48	7.0	6.9	7.1	6.9	6.0	7.5	8.7	8.9	9.7	9.8	9.9	10.2	10.8
Housing, water, Elec., Gas and other fuels	18.49	6.7	8.6	6.6	5.0	5.3	2.0	3.7	2.8	4.9	6.9	6.6	9.4	6.6
Furnishing and household equipment maintenance	4.10	7.8	7.8	8.0	7.4	7.6	9.1	10.2	10.5	10.9	10.2	9.6	9.7	9.9
Health	3.51	6.4	6.9	8.5	8.9	9.8	11.1	12.2	12.2	13.1	12.3	11.7	12.1	12.4
Transport	5.56	9.5	8.3	12.5	17.2	16.9	15.7	17.6	16.4	14.7	12.2	13.1	17.2	18.0
Communication	1.99	1.4	1.2	2.0	2.1	2.1	2.0	2.1	2.0	2.0	1.9	1.7	1.7	1.6
Recreation and culture	1.38	6.9	7.5	6.7	6.4	5.9	7.7	8.0	8.0	8.9	7.4	7.5	7.3	7.3
Education	2.13	4.5	5.9	4.1	3.9	3.6	4.9	5.3	5.3	5.3	5.3	5.0	6.7	7.1
Restaurants and hotels	6.19	4.6	4.3	4.4	3.6	2.9	6.4	8.1	8.1	8.0	8.5	8.3	8.9	10.3
Misc. goods and services	5.02	7.8	8.0	8.4	8.3	9.0	10.7	14.1	13.9	13.2	12.9	11.6	12.5	13.4

Source: Pakistan Bureau of Statistics and SBP staff estimates





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Heat-map of Urban CPI inflation (YoY)														
	Weights	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
Urban	100.00	7.2	8.9	8.4	8.5	8.1	8.7	10.6	11.6	10.9	12.1	12.0	13.4	11.2
Food	36.80	5.9	8.8	8.3	9.0	7.5	7.9	11.9	15.0	13.7	16.6	16.7	19.5	15.2
Non-perishable	32.34	5.7	6.4	6.0	6.2	6.5	8.3	11.7	13.3	10.5	10.3	10.2	13.8	13.8
Perishable	4.46	6.8	27.6	25.4	29.7	14.3	5.4	13.3	27.2	35.9	66.0	76.4	68.8	25.2
Non Food	63.20	8.0	9.0	8.4	8.3	8.4	9.2	9.9	9.7	9.3	9.6	9.5	10.2	9.1
Energy	9.47	13.5	19.6	16.8	14.8	15.4	14.5	18.1	16.8	18.1	21.0	20.6	22.8	15.3
NFNE (Core)	53.73	7.1	7.2	7.0	7.2	7.3	8.2	8.5	8.4	7.7	7.5	7.5	7.9	8.0
HRI	19.26	6.3	6.3	6.3	6.3	6.3	6.5	6.5	6.5	5.0	5.0	5.0	5.6	5.6
Core Excl HRI	34.47	7.5	7.7	7.4	7.7	7.8	9.2	9.7	9.5	9.2	9.0	8.9	9.3	9.3

Source: Pakistan Bureau of Statistics and SBP staff estimates

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Heat-map of Rural CPI inflation (MoM)														
	Weights	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
Rural	100.00	0.9	2.2	0.6	0.5	0.7	1.6	1.9	0.8	2.2	1.9	-0.3	2.4	-1.0
Food	45.95	1.7	3.3	0.6	0.6	0.7	1.7	2.9	1.8	2.6	3.4	-1.1	3.4	-1.6
Non-perishable	40.16	0.4	0.8	0.8	0.6	1.3	1.4	2.2	1.3	0.2	1.7	0.5	3.9	1.1
Perishable	5.79	13.4	22.9	-1.0	0.2	-2.7	3.7	7.1	4.5	17.6	11.9	-8.3	1.1	-15.9
Non Food	54.05	0.2	1.3	0.6	0.4	0.7	1.5	1.1	0.0	1.8	0.6	0.4	1.5	-0.4
Energy	11.41	0.1	3.8	-1.6	0.2	2.1	-0.3	1.7	-1.4	5.9	0.7	0.6	3.3	-3.8
NFNE (Core)	42.64	0.2	0.6	1.2	0.4	0.3	2.0	1.0	0.3	0.7	0.5	0.3	1.0	0.5
HRI	8.61	0.0	0.0	1.5	0.0	0.0	1.9	0.0	0.0	0.5	0.0	0.0	2.2	0.0
Core Excl HRI	34.03	0.3	0.8	1.1	0.6	0.4	2.0	1.3	0.4	0.8	0.7	0.4	0.7	0.7

Source: Pakistan Bureau of Statistics and SBP staff estimates

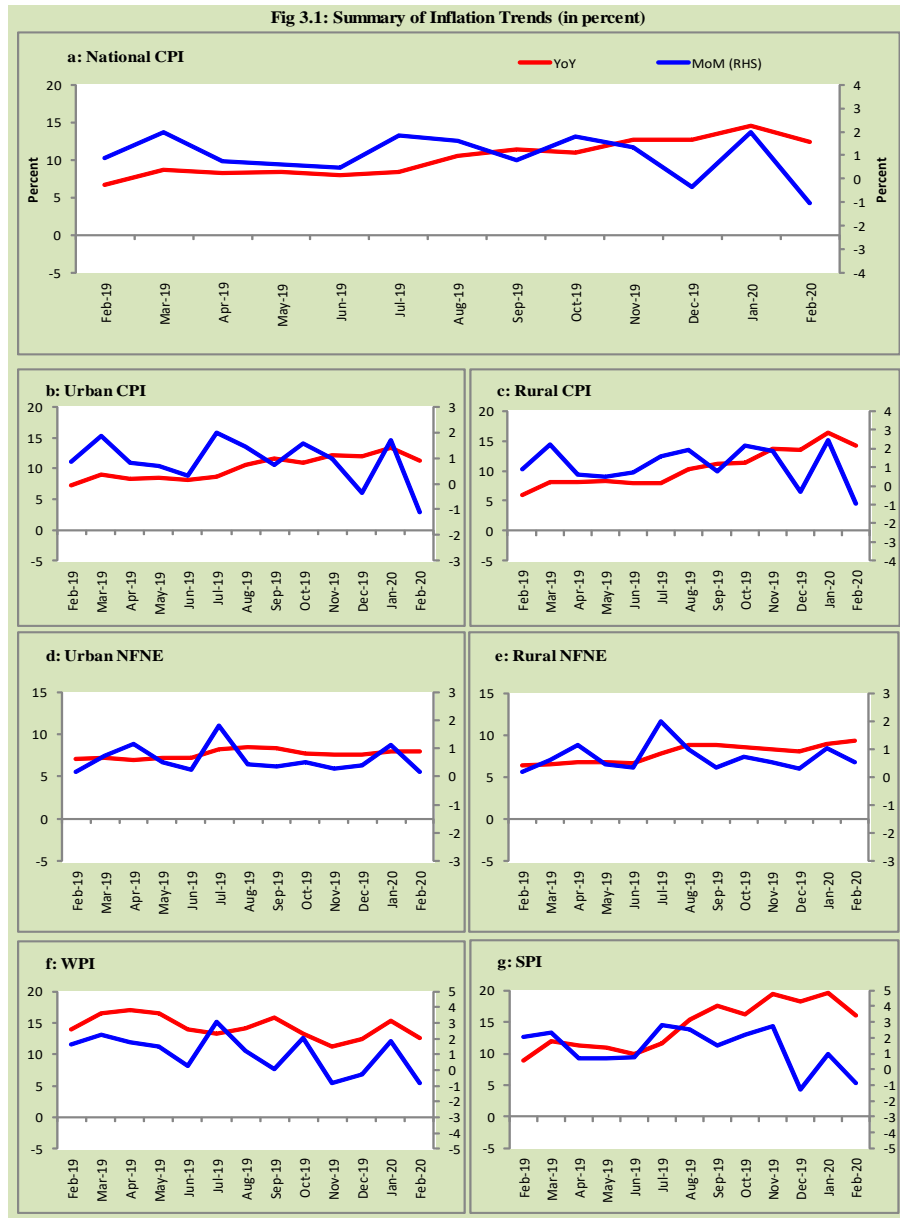
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Heat-map of Urban CPI inflation (MoM)														
	Weights	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
Urban	100.00	0.9	1.9	0.8	0.7	0.3	2.0	1.5	0.7	1.6	1.0	-0.4	1.7	-1.1
Food	36.80	2.3	2.5	1.3	1.3	-0.3	1.0	3.1	2.0	1.4	2.4	-1.7	2.7	-1.4
Non-perishable	32.34	0.5	0.9	1.1	0.8	0.3	1.4	2.6	1.5	-0.1	1.2	0.0	3.0	0.5
Perishable	4.46	17.9	14.8	2.5	4.8	-4.1	-1.2	6.5	5.3	10.7	9.2	-10.3	0.7	-12.6
Non Food	63.20	0.1	1.5	0.6	0.3	0.7	2.5	0.5	0.0	1.7	0.2	0.4	1.1	-0.9
Energy	9.47	-0.1	5.9	-2.3	-0.7	3.2	6.3	1.1	-1.6	7.9	-0.1	0.6	1.2	-6.2
NFNE (Core)	53.73	0.2	0.8	1.1	0.5	0.2	1.8	0.4	0.4	0.5	0.3	0.4	1.1	0.2
HRI	19.26	0.0	0.0	1.6	0.0	0.0	1.5	0.0	0.0	0.5	0.0	0.0	1.9	0.0
Core Excl HRI	34.47	0.3	1.2	0.9	0.8	0.4	2.0	0.7	0.6	0.5	0.4	0.6	0.7	0.3

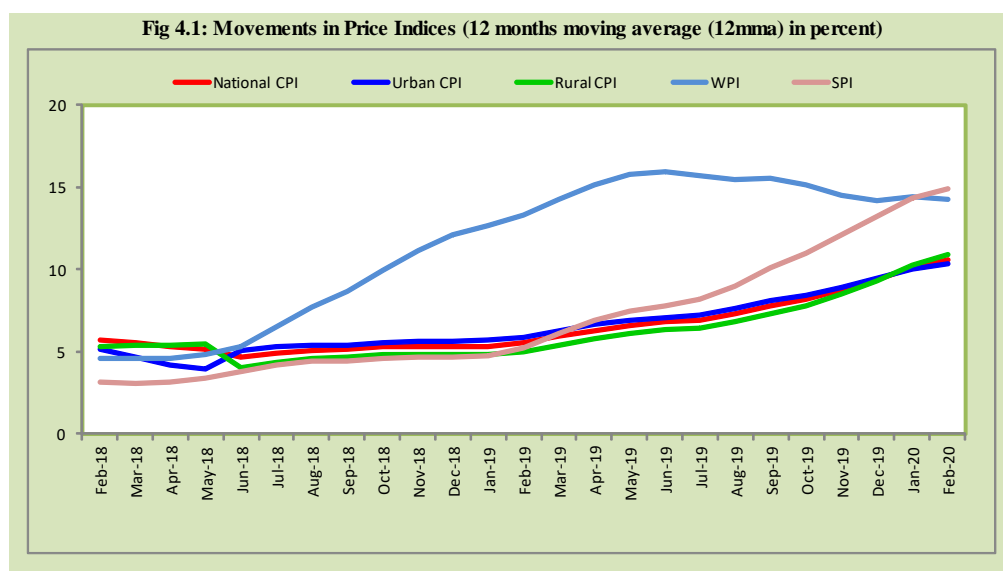
Source: Pakistan Bureau of Statistics and SBP staff estimates

<0.00 0.75 >1.50

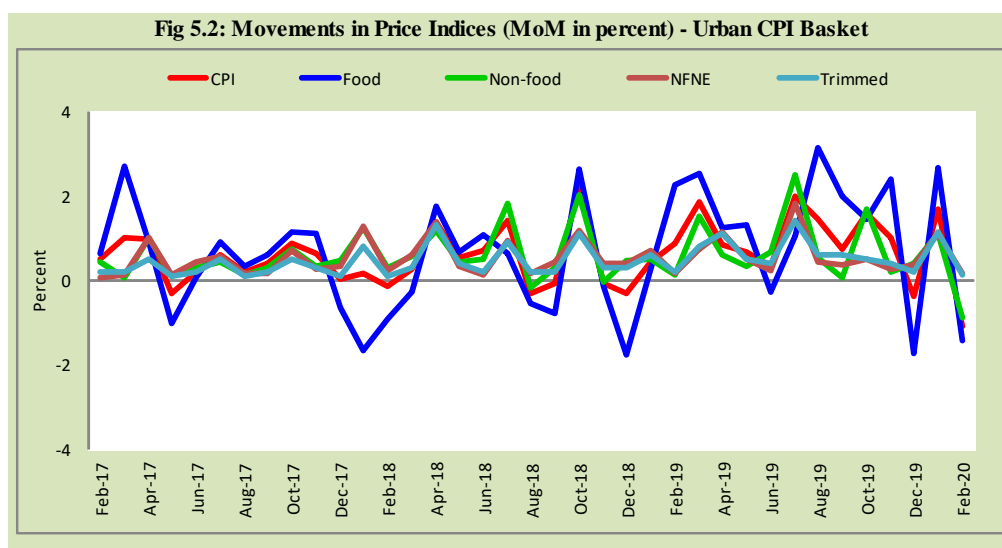
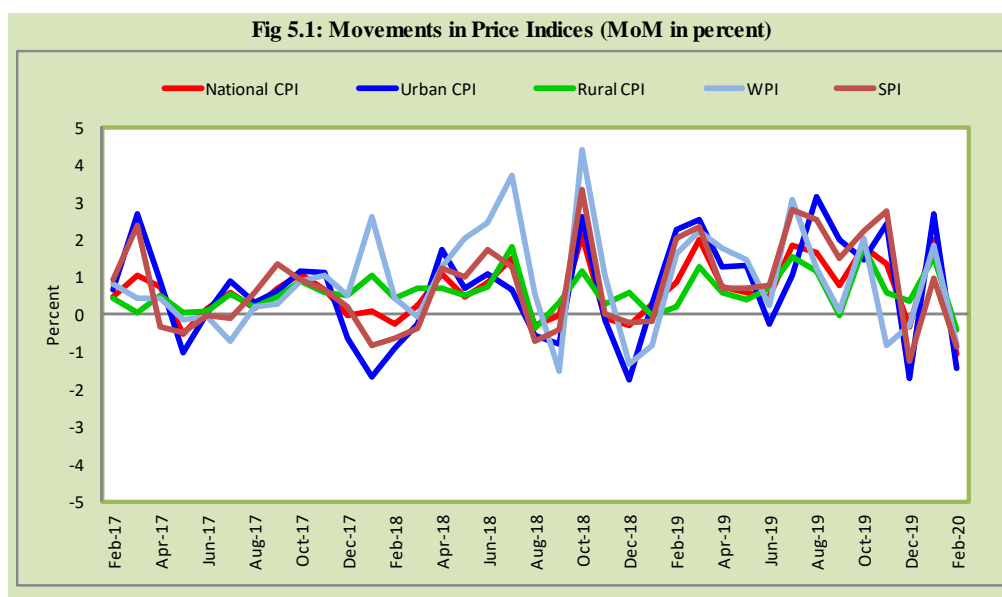
3. Trends in Inflation

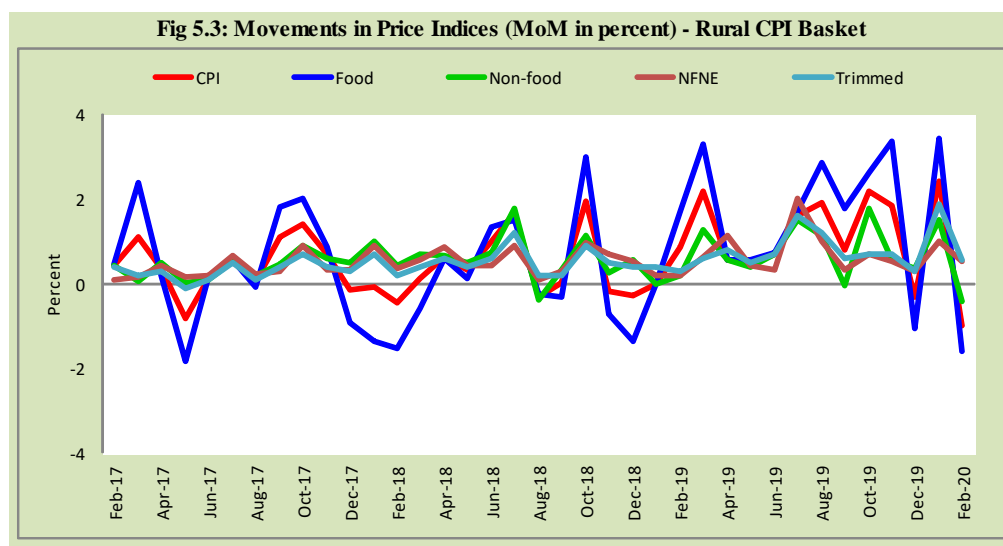


4. Movement in Price Indices (Moving Averages)



5. Movement in Price Indices (Month-on-Month)

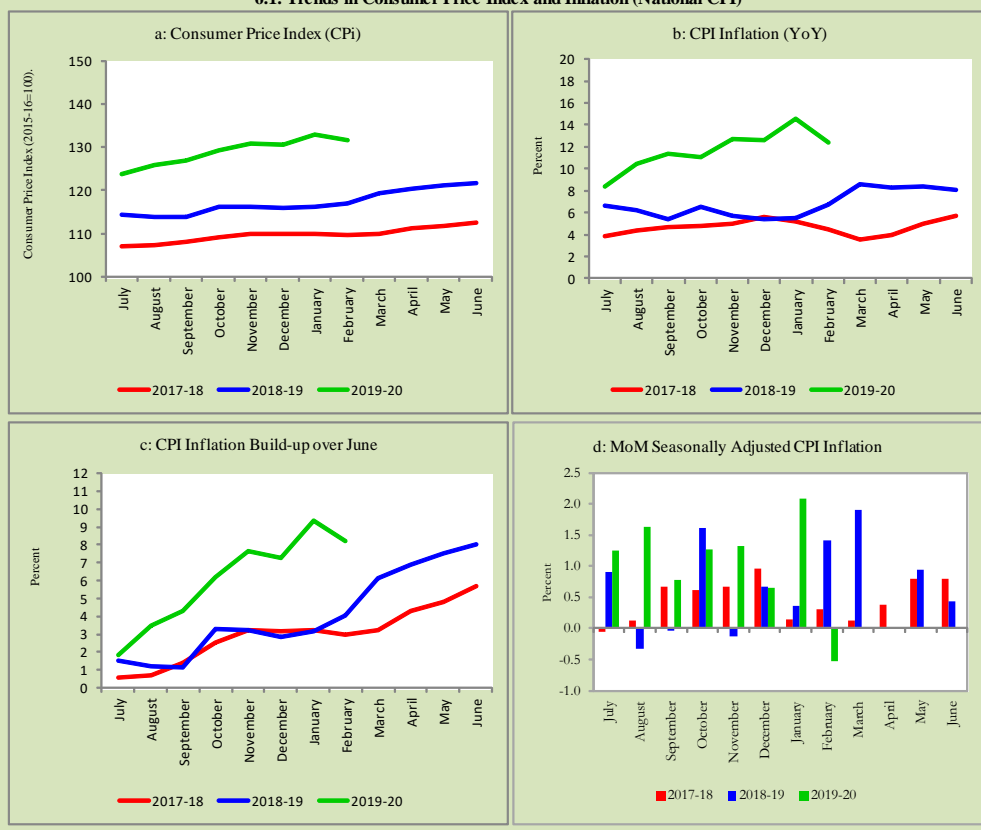




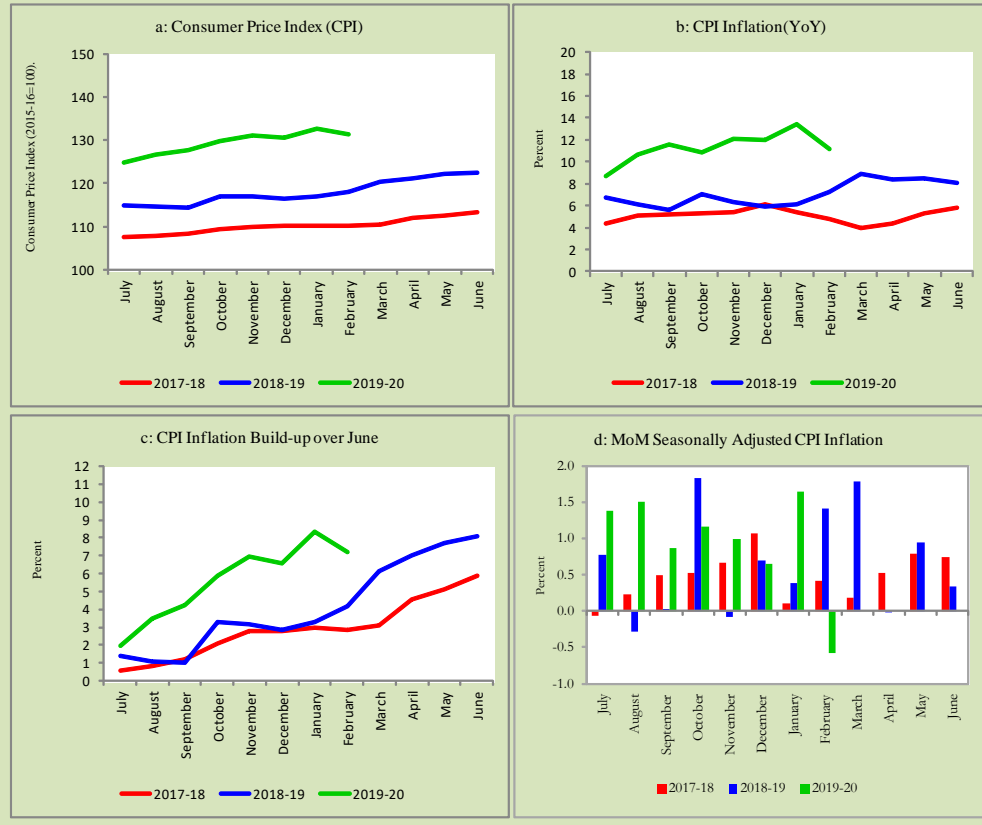
6. Trends in Consumer Price Indices and Inflation

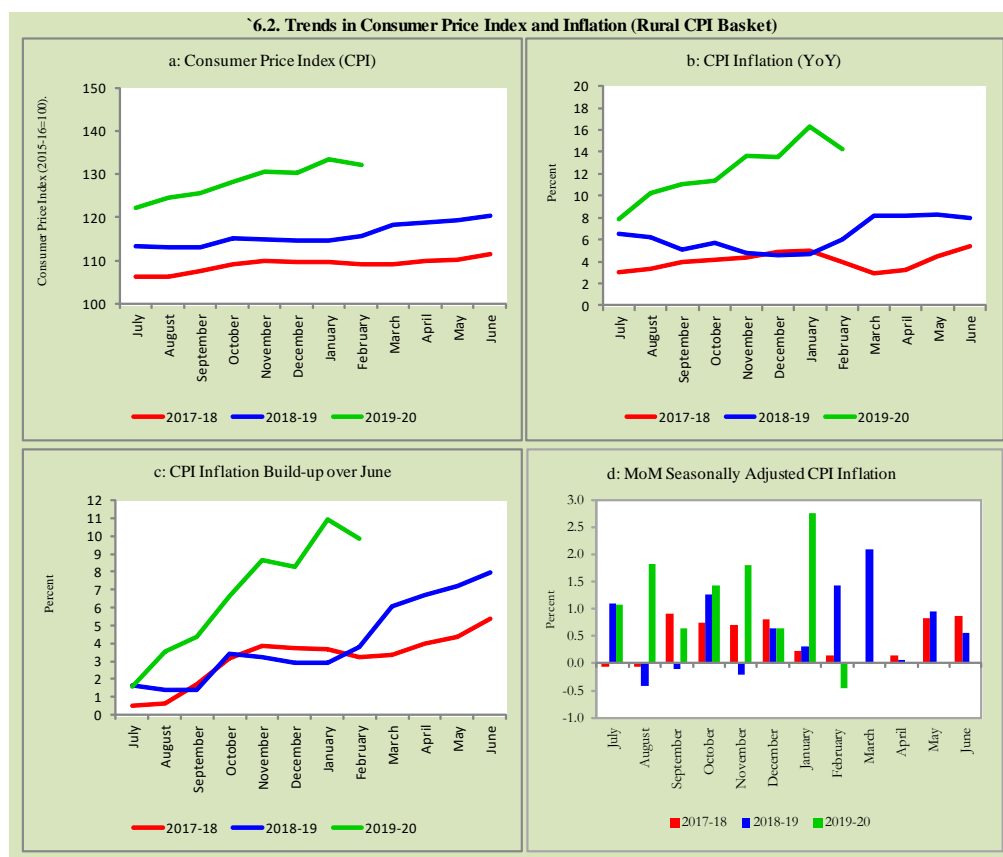
Monthly Consumer Price Indices, YoY growth rates and inflation build up over June along with seasonally adjusted (MoM) growth rates in CPI (National, Urban and Rural) is summarized in the following graphs (Figure 6.1 to 6.3).

6.1. Trends in Consumer Price Index and Inflation (National CPI)



6.2. Trends in Consumer Price Index and Inflation (Urban CPI Basket)





7. Weighted Contribution

The weighted contribution of food group in the overall urban CPI inflation decreased to 47.7 percent during February 2020 from 50.5 percent in previous month. It was 29.0 percent during corresponding month of last year. The weighted contribution of non-food group increased to 52.3 percent in February 2020 from 49.6 percent in previous month. Non-food group was 71.1 percent during corresponding month of last year. Table 7.1 provide the historical perspective of weighted contribution of food group and non-food group and their respective sub-indexes (Perishable food, Non-Perishable food, Energy, Core Inflation (NFNE), NFNE excluding HRI and

HRI) in the overall inflation for urban basket. Figure 7.1 provides a graphical presentation of composition of YoY urban CPI inflation cascaded in food group and non-food groups and their respective sub-indexes.

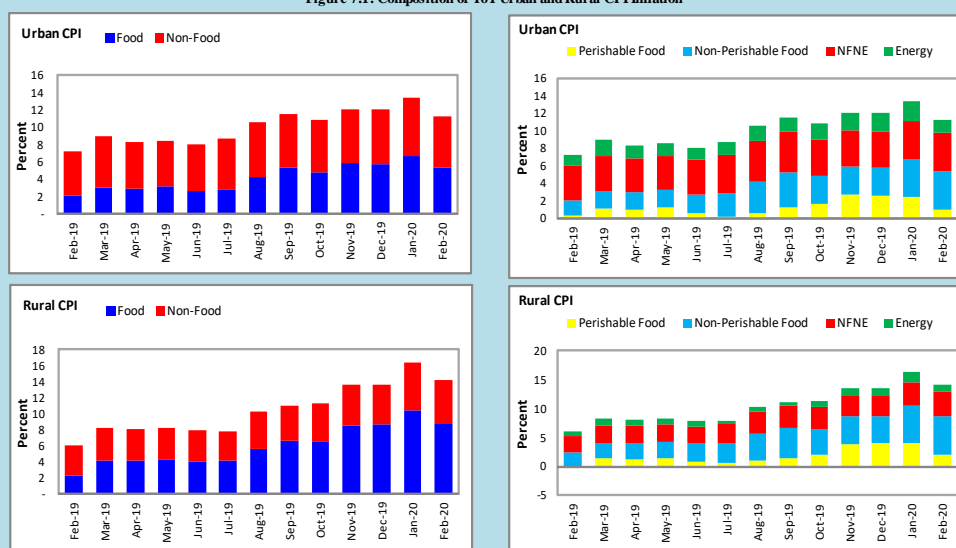
Table 7.1 Weighted Contribution (in percent) to Urban CPI Inflation (YoY)									
Period	Overall CPI	Food Group			Non-Food Group				
		Food	Perishable food	Non-Perishable food	Non-food	Energy	Core Inflation (NFNE)	NFNE excl HRI	HRI
		a=(b+e)	b=(c+d)	c	d	e=(f+g)	f	g=(h+i)	h
Feb-19	100	29.0	3.9	25.0	71.1	17.2	53.9	36.2	17.7
Mar-19	100	35.0	12.5	22.6	65.0	20.2	44.8	30.5	14.3
Apr-19	100	35.3	12.6	22.7	64.6	18.4	46.3	31.0	15.2
May-19	100	37.6	14.6	23.0	62.4	15.9	46.4	31.6	14.8
Jun-19	100	33.2	8.0	25.2	66.8	17.7	49.1	33.6	15.5
Jul-19	100	32.3	3.0	29.3	67.7	16.4	51.3	36.5	14.8
Aug-19	100	39.7	6.0	33.7	60.3	16.5	43.8	31.6	12.2
Sep-19	100	45.8	10.5	35.3	54.2	14.1	40.1	28.9	11.2
Oct-19	100	44.7	14.9	29.7	55.4	16.8	38.6	29.3	9.2
Nov-19	100	48.7	22.1	26.6	51.3	17.1	34.2	25.9	8.3
Dec-19	100	48.4	21.8	26.6	51.7	17.1	34.6	26.2	8.4
Jan-20	100	50.5	18.4	32.1	49.6	16.8	32.8	24.3	8.5
Feb-20	100	47.7	9.4	38.3	52.3	13.3	39.0	29.0	10.1

Also, for rural basket, the weighted contribution of food group in the overall rural CPI inflation decreased to 61.7 percent during February 2020 from 64.2 percent in previous month. It was 38.6 percent during corresponding month of last year. On the other hand, the weighted contribution of non-food group increased to 38.2 percent in February 2020 from 35.6 percent in previous month. Non-food group was 61.4 percent during corresponding month of last year. Table 7.2 provide the historical perspective of weighted contribution of food group (Perishable food, Non-Perishable food) and non-food group (Energy, Core Inflation (NFNE), NFNE excluding HRI and HRI) in the overall inflation for rural basket. Figure 7.1 provides a graphical display of composition of YoY rural CPI inflation distributed in food group and non-food groups and their respective sub-indexes.

Table 7.2 Weighted Contribution (in percent) to Rural CPI Inflation (YoY)

Period	Overall CPI	Food Group			Non-Food Group				
		Food	Perishable food	Non-Perishable food	Non-food	Energy	Core Inflation (NFNE)	NFNE excl HRI	HRI
		a=(b+e)	b=(c+d)	c	d	e=(f+g)	f	g=(h+i)	i
Feb-19	100	38.6	-2.2	40.8	61.4	14.7	46.7	38.1	8.7
Mar-19	100	50.4	18.6	31.8	49.6	14.9	34.7	28.4	6.3
Apr-19	100	50.7	15.7	35.0	49.2	12.6	36.6	29.4	7.3
May-19	100	52.4	16.9	35.5	47.6	11.5	36.2	29.0	7.1
Jun-19	100	50.9	10.0	40.9	49.2	12.4	36.7	29.4	7.3
Jul-19	100	52.4	8.7	43.7	47.6	4.4	43.2	36.9	6.4
Aug-19	100	54.8	9.8	45.1	45.2	7.7	37.5	32.6	4.9
Sep-19	100	60.0	13.3	46.7	40.0	5.1	34.9	30.4	4.5
Oct-19	100	57.8	18.5	39.3	42.2	9.5	32.7	29.5	3.3
Nov-19	100	63.3	28.7	34.5	36.7	9.8	26.9	24.2	2.7
Dec-19	100	63.9	29.4	34.5	36.1	9.8	26.3	23.6	2.8
Jan-20	100	64.2	24.8	39.3	35.8	11.4	24.4	20.9	3.5
Feb-20	100	61.7	14.6	47.1	38.2	9.3	28.9	24.9	4.0

Figure 7.1: Composition of YoY Urban and Rural CPI Inflation



8. Inflation Diffusion Index

Inflation diffusion index (IDI) is the difference (MoM change) 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 basket for which prices have reported. IDI for urban and rural baskets (CPI, Core and twelve groups) is presented in Table 8.1(a & b) for the last thirteen months.

Table 8.1(a) Inflation Diffusion Index for Urban CPI Basket - based on MoM change													
	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
General	40.2	55.6	31.7	39.3	52.5	61.5	65.2	52.8	61.8	55.3	43.5	56.2	52.5
Food & Non-Alcoholic Beverages	37.8	46.7	24.4	47.8	43.3	50.0	65.6	50.0	67.8	45.6	35.6	66.7	35.6
Alcoholic Beverages & Tobacco	33.3	-33.3	0.0	0.0	100.0	100.0	66.7	100.0	100.0	100.0	66.7	100.0	66.7
Clothing & Footwear	35.0	60.0	27.5	40.0	60.0	70.0	80.0	57.5	72.5	80.0	72.5	75.0	75.0
Housing, Water, Elect, Gas & other Fuels	41.4	51.7	-24.1	3.4	65.5	44.8	37.9	10.3	55.2	24.1	20.7	3.4	6.9
Furnishing & Household Equip. Maintenance etc	78.6	76.2	64.3	54.8	90.5	76.2	88.1	97.6	88.1	95.2	76.2	71.4	92.9
Health	25.0	50.0	100.0	50.0	75.0	0.0	100.0	0.0	100.0	50.0	25.0	75.0	75.0
Transport	25.0	50.0	100.0	50.0	75.0	0.0	100.0	0.0	100.0	50.0	25.0	75.0	75.0
Communication	20.0	20.0	40.0	20.0	20.0	40.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Recreation & Culture	24.0	64.0	60.0	44.0	36.0	56.0	60.0	32.0	24.0	32.0	20.0	20.0	28.0
Education	-18.8	43.8	50.0	56.3	0.0	56.3	56.3	62.5	6.3	25.0	12.5	6.3	0.0
Restaurant & Hotels	35.7	50.0	28.6	35.7	50.0	78.6	85.7	78.6	78.6	71.4	28.6	71.4	85.7
Miscellaneous	72.4	41.4	55.2	48.3	82.8	69.0	79.3	96.6	79.3	65.5	34.5	82.8	75.9
NFNE	42.1	60.0	38.3	40.4	55.7	68.1	68.1	59.1	58.3	63.0	48.1	55.3	62.6

Table 8.1(b) Inflation Diffusion Index (CPI Rural Basket) - based on MoM change

	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
General	45.1	49.2	49.2	41.4	46.7	73.0	60.7	34.4	64.3	50.8	36.9	56.6	48.0
Food & Non-Alcoholic Beverages	54.4	44.3	30.4	30.4	36.7	65.8	55.7	22.8	69.6	46.8	25.3	67.1	32.9
Alcoholic Beverages & Tobacco	40.0	20.0	0.0	20.0	100.0	100.0	100.0	80.0	100.0	80.0	0.0	60.0	100.0
Clothing & Footwear	48.1	55.6	81.5	77.8	63.0	85.2	81.5	66.7	77.8	59.3	48.1	77.8	85.2
Housing, Water, Elect, Gas & other Fuels	21.7	43.5	0.0	-4.3	60.9	39.1	52.2	-4.3	82.6	34.8	39.1	8.7	0.0
Furnishing & Household Equip. Maintenance etc	84.6	61.5	88.5	65.4	42.3	84.6	88.5	73.1	84.6	80.8	57.7	69.2	73.1
Health	35.7	50.0	71.4	64.3	57.1	78.6	57.1	35.7	50.0	78.6	57.1	42.9	42.9
Transport	31.3	87.5	56.3	56.3	56.3	75.0	50.0	12.5	37.5	43.8	25.0	43.8	43.8
Communication	20.0	0.0	40.0	40.0	20.0	40.0	20.0	0.0	-20.0	20.0	20.0	20.0	20.0
Recreation & Culture	11.1	55.6	66.7	27.8	11.1	72.2	11.1	22.2	27.8	11.1	27.8	22.2	33.3
Education	0.0	80.0	80.0	60.0	0.0	80.0	20.0	0.0	0.0	0.0	20.0	0.0	80.0
Restaurant & Hotels	7.1	28.6	50.0	21.4	35.7	85.7	57.1	21.4	42.9	42.9	35.7	78.6	71.4
Miscellaneous	64.7	47.1	64.7	64.7	76.5	100.0	88.2	70.6	70.6	64.7	58.8	70.6	82.4
NFNE	43.4	50.7	67.6	55.9	47.8	81.6	63.2	49.3	58.1	55.1	44.9	52.2	58.1

See annexure B (Technical Notes) for the methodology of Inflation Diffusion Index.

9. Domestic Commodity Prices

Inflation in domestic food commodities (YoY and MoM in percent) for selected essential food items covering both urban and rural CPI baskets is given in table 9.1.

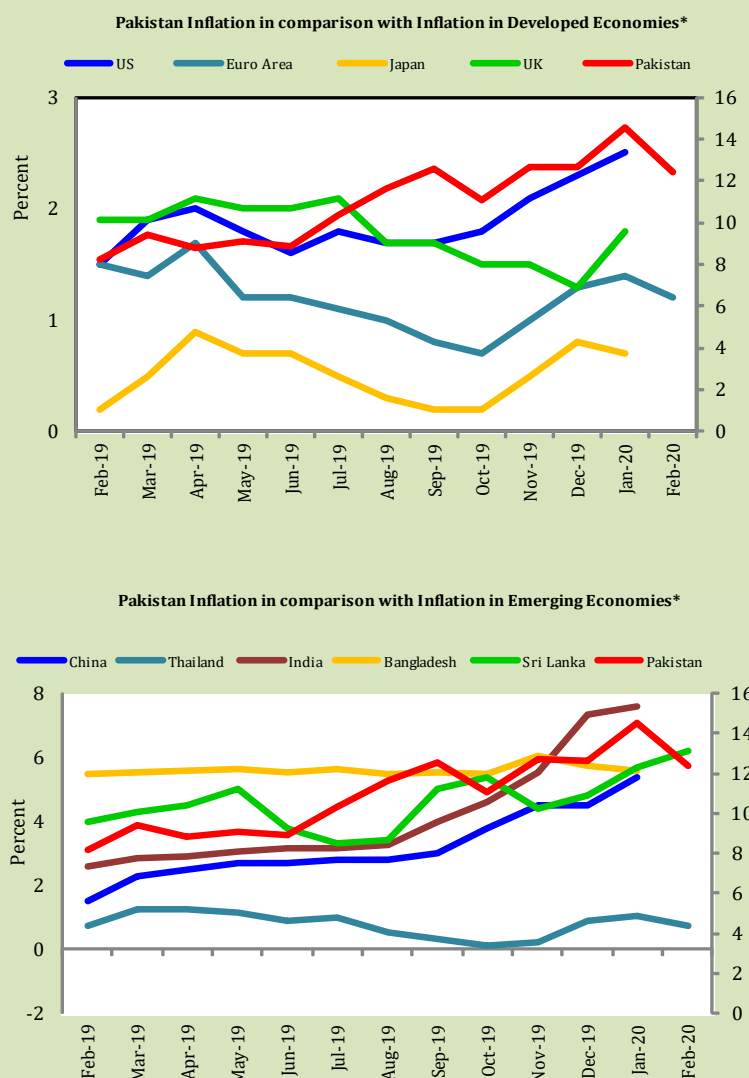
Table 9.1 Inflation in Domestic Urban and Rural CPI Food Commodities (in percent) - February, 2020

S. No	Item	Unit	Urban CPI		Rural CPI	
			YoY	MoM	YoY	MoM
1	Wheat	10 Kg	30.0	-3.5	33.7	1.6
2	Wheat Flour Bag	20 Kg	14.6	-5.4	17.8	-3.8
3	Rice Basmati Broken (Superior/Average Quality)*	1 Kg	10.6	0.0	7.9	0.8
4	Beef With Bone (Average Quality)	1 Kg	15.2	0.2	9.0	0.0
5	Mutton (Average Quality)	1 Kg	10.7	0.2	10.7	0.1
6	Chicken Farm Broiler (Live)	1 Kg	14.5	2.4	21.3	5.8
7	Milk Fresh (Un-Boiled)	1 Litre	8.8	0.0	8.2	0.1
8	Eggs Farm	Dozen	-10.3	-26.4	-5.3	-20.2
9	Vegetable Ghee Dalda/Habib Or Other Superior Quality 1 Kg Pouch	Each	34.6	11.6	33.8	5.9
10	Pulse Masoor (Washed)	1 Kg	21.6	0.4	27.7	4.3
11	Pulse Moong (Washed)	1 Kg	83.6	2.3	90.3	3.9
12	Pulse Mash (Washed)	1 Kg	51.0	1.1	47.2	5.1
13	Pulse Gram	1 Kg	24.0	-2.3	24.5	-1.5
14	Potatoes	1 Kg	88.1	-13.3	110.2	-15.6
15	Onions	1 Kg	102.7	-8.8	95.5	-11.4
16	Tomatoes	1 Kg	-61.0	-60.3	-45.3	-57.6
17	Sugar Refined	1 Kg	36.9	8.4	138.3	29.9
18	Garlic (Lehsun)	1 Kg	143.4	30.7	35.2	8.0
19	Ginger (Adrak)	500 Gm	92.3	19.7	132.2	29.5
20	Tea Lipton Yellow Label 190 Gm Packet	Each	9.7	0.1	9.9	0.1
*Superior Quality for Urban CPI Basket and Average Quality for Rural CPI Basket						

10. Inflation in Global Context

In global context, Pakistan witnessed highest inflation not only in comparison with developed economies but also with emerging economies (See figure 10.1).

Fig 10.1: Inflation in Global Context



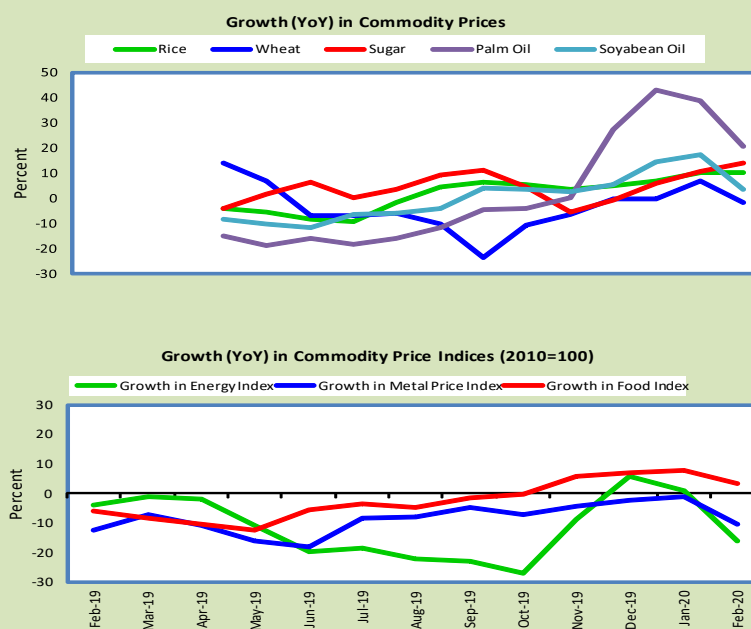
11. Global Commodity Prices

Global commodity prices and various group indexes have a relation with domestic inflation. In this context, changes in major global commodity prices and indexes along with price trends are given in table 11.1 and figure 11.1.

Table 11.1 Changes in Major Global Indices (percent)

Item/ Group	Feb-19		Jan-20		Feb-20	
	YoY	MoM	YoY	MoM	YoY	MoM
Food	-4.1	1.0	8.0	1.8	3.5	-3.6
Metals	-16.2	-1.8	-0.9	-0.3	-10.2	-5.6
Energy	-13.2	1.6	0.9	-3.2	-16.0	-12.7
Agricultural	-4.1	1.1	6.1	1.5	2.8	-2.8
Cotton	-9.6	-4.2	-4.0	4.3	-5.6	-3.2

Figure 11.1: Growth (YoY) in Global Commodity Prices



12. 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 these 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 Indices (National CPI, Urban CPI and Rural CPI) from July 2008 to February 2020 has been used for seasonal adjustment analysis. The seasonal analysis is carried out without taking trading-day or Islamic calendar month's effects.

Figure 12.1 reveals that seasonality in all CPI series has been increasing over the period. 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 estimate historical data and that the future data may not necessarily show the same seasonal pattern.

Fig. 12.1 (a) Seasonal Factors of National CPI

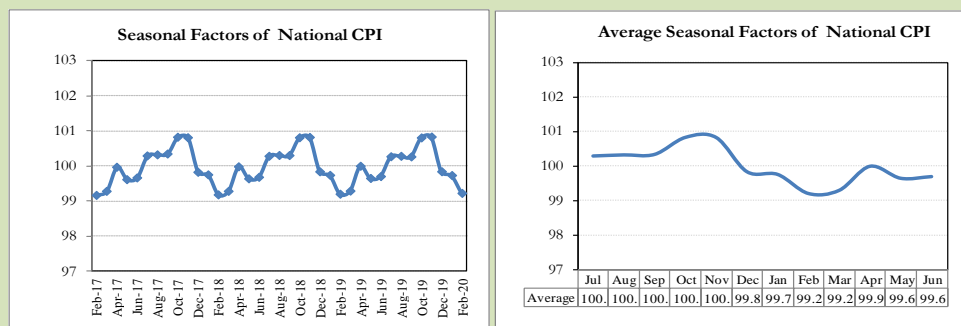


Fig. 12.1 (b) Seasonal Factors of Urban CPI

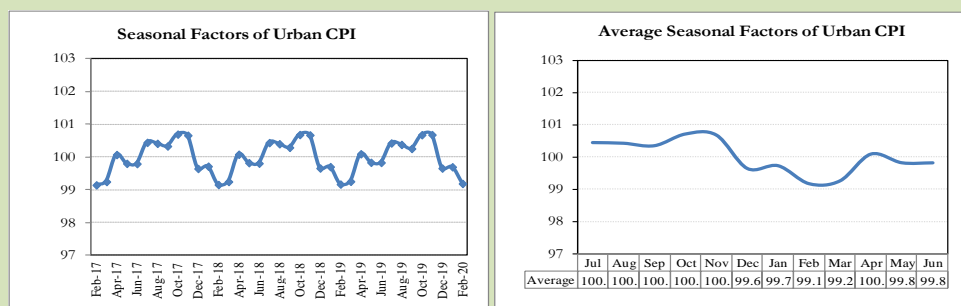
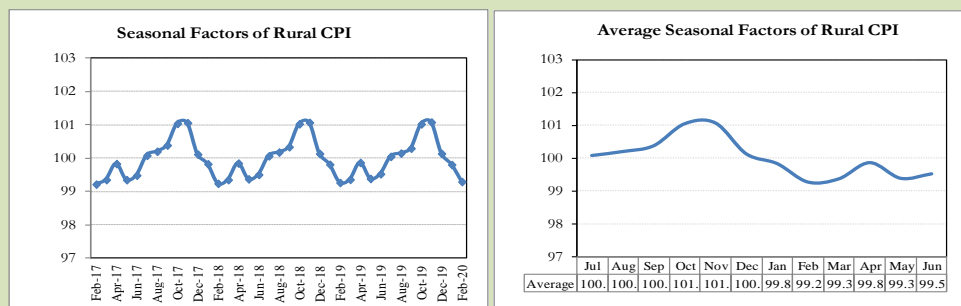


Fig. 12.1 (c) Seasonal Factors of Rural CPI



Figures 12.2 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. 12.2 (a) Seasonal Plots of National CPI

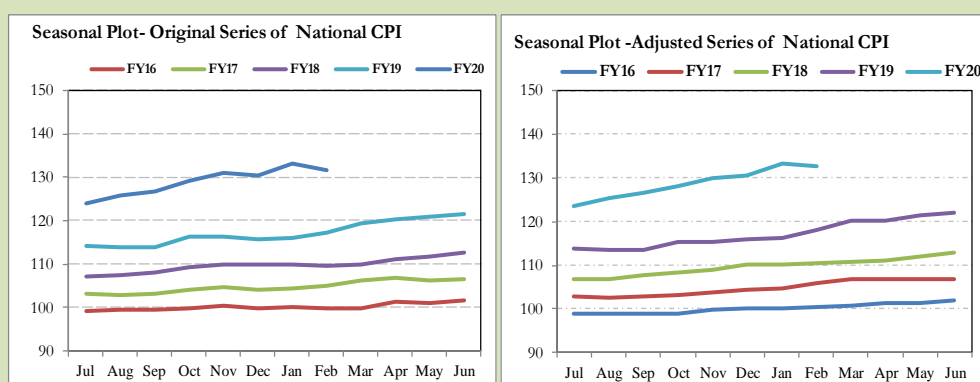


Fig. 12.2 (b) Seasonal Plots of Urban CPI

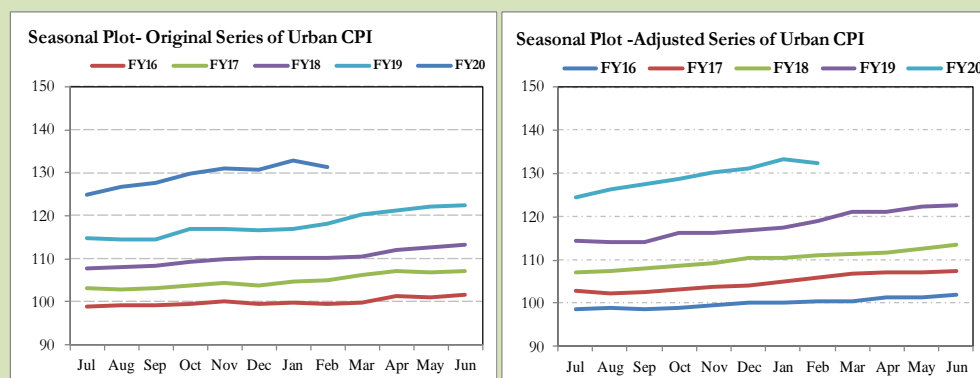
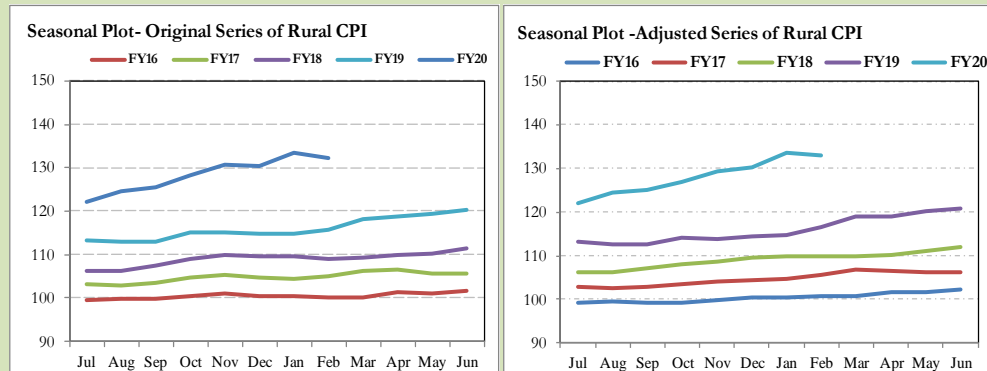


Fig. 12.2 (c) Seasonal Plots of Rural CPI



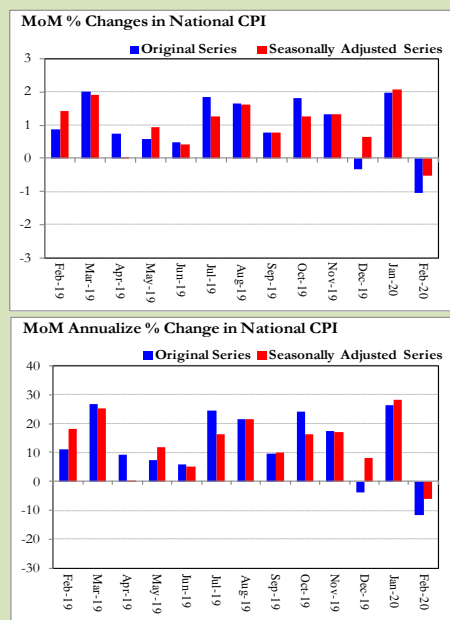
Seasonally adjusted National CPI for February 2020 stood at 132.66 against 131.64 in original series showing an increase of 1.02 on account of adjustment of downward seasonality in February 2020.

Seasonally adjusted Urban CPI for February 2020 stood at 132.39 against 131.32 in original series showing an increase of 1.07 on account of adjustment of downward seasonality in February 2020.

Seasonally adjusted Rural CPI for February 2020 stood at 133.07 against 132.13 in original series showing an increase of 0.94 on account of adjustment of downward seasonality in February 2020.

Month-on-month change of seasonally adjusted National CPI series stood at -0.53% reflecting a decrease during

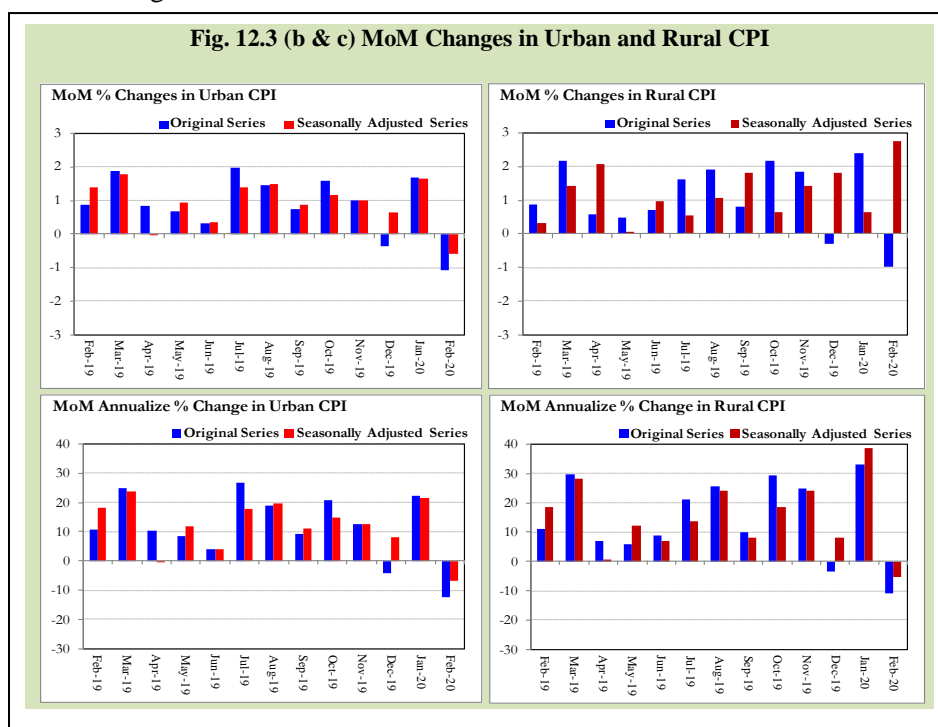
Fig. 12.3 (a) MoM Changes in National CPI



February 2020 over previous month and a decrease of 1.04% in original series.

Month-on-month change of seasonally adjusted Urban CPI series stood at -0.59% reflecting a decrease during February 2020 over previous month and a decrease of -1.09% in original series.

Month-on-month change of seasonally adjusted Rural CPI series stood at -0.46% reflecting a decrease during February 2020 over previous month and a decrease of 0.97% in original series.



It is pertinent to note that in case of MoM inflation, seasonally adjusted rates provide important information. The most recent annual rate of inflation is usually indicated by annualizing the seasonally adjusted month-on-month rate. Annualized rate of National CPI inflation in February 2020 (corresponding to the seasonally adjusted month-on-month rate) is -6.23 percent.

Annexure A

Table A1: National CPI Inflation by Groups (YoY and MoM in percent)							
	Weights	MoM change			YoY change		
		Feb-19	Jan-20	Feb-20	Feb-19	Jan-20	Feb-20
Food & Non-Alcoholic Beverages	34.6	2.4	3.4	-2.0	5.4	23.7	18.4
Alcoholic Beverages & Tobacco	1.0	-0.2	0.3	0.3	14.3	17.9	18.5
Clothing & Footwear	8.6	0.2	0.9	0.7	6.4	9.6	10.1
Housing, Water, Elec, Gas & other Fuels	23.6	0.1	1.9	-2.5	7.9	9.6	6.8
Furnishing & Household Equip. Maintenance	4.1	0.7	0.4	0.6	8.6	10.1	10.0
Health	2.8	0.3	0.6	0.5	6.1	11.8	12.0
Transport	5.9	-0.2	0.9	0.3	10.4	18.6	19.2
Communication	2.2	0.1	0.0	0.0	2.0	4.0	3.9
Recreation & Culture	1.6	0.1	0.1	0.1	6.7	6.5	6.6
Education	3.8	0.0	0.0	0.1	6.4	7.3	7.4
Restaurants & Hotels	6.9	0.1	1.5	1.3	4.8	7.4	8.7
Miscellaneous	4.9	0.7	1.4	0.7	9.0	11.4	11.4
Overall National CPI	100.0	0.9	2.0	-1.0	6.7	14.6	12.4

Table A2: Urban CPI Inflation by Groups (YoY and MoM in percent)							
	Weights	MoM change			YoY change		
		Feb-19	Jan-20	Feb-20	Feb-19	Jan-20	Feb-20
I. Food Group	36.8	2.3	2.7	-1.4	5.9	19.5	15.2
Food & Non-Alcoholic Beverages	30.4	2.8	3.1	-2.0	5.9	22.0	16.4
Alcoholic Beverages & Tobacco	0.9	-0.6	0.4	0.2	14.6	16.8	17.7
Restaurant & Hotels (Food Component)	5.5	0.1	0.7	1.6	4.5	6.9	8.6
II. Non-Food Group	63.2	0.1	1.1	-0.9	8.0	10.2	9.1
Clothing & Footwear	8.0	0.0	0.8	0.5	5.9	9.0	9.6
Housing, Water, Elec, Gas & other Fuels	27.0	0.0	1.5	-2.5	8.5	9.7	6.9
Furnishing & Household Equip. Maintenance	4.1	0.9	0.2	0.6	9.2	10.4	10.0
Health	2.3	0.1	0.6	0.3	5.8	11.5	11.7
Transport	6.1	-0.3	0.9	0.1	11.0	19.4	19.9
Communication	2.4	0.1	0.0	0.0	2.4	5.3	5.3
Recreation & Culture	1.7	0.1	0.0	0.1	6.5	6.1	6.1
Education	4.9	0.0	0.0	0.0	7.0	7.5	7.5
Restaurants & Hotels (Non-food Component)	1.9	0.0	5.2	0.0	6.5	5.3	5.4
Miscellaneous	4.8	0.8	1.2	0.3	9.8	10.7	10.1
Overall Urban CPI	100.0	0.9	1.7	-1.1	7.2	13.4	11.2

Table A3: Rural CPI Inflation by Groups (YoY and MoM in percent)

	Weights	MoM change			YoY change		
		Feb-19	Jan-20	Feb-20	Feb-19	Jan-20	Feb-20
I. Food Group	45.9	1.7	3.4	-1.6	5.2	23.8	19.7
Food & Non-Alcoholic Beverages	40.9	2.0	3.7	-2.0	4.8	25.5	20.6
Alcoholic Beverages & Tobacco	1.3	0.2	0.2	0.4	14.0	19.2	19.4
Restaurant & Hotels (Food Component)	3.8	0.1	1.1	2.2	6.6	8.7	11.0
II. Non-Food Group	54.1	0.2	1.5	-0.4	6.7	10.5	9.8
Clothing & Footwear	9.5	0.4	1.1	0.9	7.0	10.2	10.8
Housing, Water, Elec, Gas & other Fuels	18.5	0.1	2.8	-2.5	6.7	9.4	6.6
Furnishing & Household Equip. Maintenance etc	4.1	0.5	0.8	0.6	7.8	9.7	9.9
Health	3.5	0.4	0.6	0.7	6.4	12.1	12.4
Transport	5.6	-0.2	0.9	0.5	9.5	17.2	18.0
Communication	2.0	0.1	0.0	0.0	1.4	1.7	1.6
Recreation & Culture	1.4	0.1	0.3	0.1	6.9	7.3	7.3
Education	2.1	0.0	0.0	0.4	4.5	6.7	7.1
Restaurants & Hotels (Non-food Component)	2.4	0.0	0.6	0.0	1.3	9.2	9.2
Miscellaneous	5.0	0.4	1.5	1.2	7.8	12.5	13.4
Overall Rural CPI		0.9	2.4	-1.0	6.0	16.3	14.2

Table A4: Top Ten Contributors to Urban CPI Inflation (YoY) in February 2020					
Items/ Contributors		Weights	YoY Change		Weighted Contribution (%)
			Feb-19	Feb-20	
A. Ranked by Weighted Contribution					
1	House Rent	19.26	6.34	5.63	10.05
2	Motor Fuel	2.91	8.44	26.82	7.52
3	Fresh Vegetables	1.53	-1.79	61.89	6.91
4	Gas Charges	1.08	38.63	54.84	6.27
5	Milk Fresh	7.11	5.19	8.35	4.99
6	Readymade Food	5.52	4.48	8.59	4.22
7	Wheat Flour	3.01	1.79	17.36	4.06
8	Education	4.88	6.97	7.49	3.72
9	Condiments And Spices	1.33	17.72	25.59	3.27
10	Vegetable Ghee	1.03	6.50	33.57	2.97
Total		47.66			53.97
B. Ranked by Percentage Change					
1	Onions	0.59	-32.97	102.75	2.87
2	Pulse Moong	0.17	8.54	83.59	0.84
3	Potatoes	0.45	-20.61	83.24	2.42
4	Fresh Vegetables	1.53	-1.79	61.89	6.91
5	Gas Charges	1.08	38.63	54.84	6.27
6	Pulse Mash	0.12	-0.25	51.05	0.28
7	Butter	0.09	4.65	43.33	0.35
8	Sugar	1.11	11.51	36.90	2.92
9	Vegetable Ghee	1.03	6.50	33.57	2.97
10	Gur	0.04	16.89	33.38	0.10
Total		6.22			25.93
C. Ranked by Weights					
1	House Rent	19.26	6.34	5.63	10.05
2	Milk Fresh	7.11	5.19	8.35	4.99
3	Readymade Food	5.52	4.48	8.59	4.22
4	Education	4.88	6.97	7.49	3.72
5	Electricity Charges	4.56	13.38	-4.09	-1.59
6	Wheat Flour	3.01	1.79	17.36	4.06
7	Appliances/Articles/Products For P	2.98	9.73	8.04	2.12
8	Motor Fuel	2.91	8.44	26.82	7.52
9	Cotton Cloth	2.22	6.02	13.52	2.56
10	Meat	2.04	8.43	13.28	2.57
Total		54.48			40.21
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 Urban CPI, which is 11.2 percent in February 2020.					

Table A5: Top Ten Contributors to Urban CPI Inflation (MoM) in February 2020

Table 10: Top Ten Contributors to Urban Inflation (Weighted) in February 2020					
Items/ Contributors		Weights	MoM Change		Weighted Contribution (%)
			Jan-20	Feb-20	
A. Ranked by Weighted Contribution					
1	Electricity Charges	4.56	-2.18	-13.48	52.88
2	Tomatoes	0.35	-8.36	-60.27	36.07
3	Fresh Vegetables	1.53	11.70	-11.48	21.40
4	Eggs	0.51	14.28	-26.36	14.44
5	Wheat Flour	3.01	7.42	-5.29	14.00
6	Liquefied Hydrocarbons	0.51	26.17	-13.53	8.79
7	Potatoes	0.45	-3.69	-12.91	7.21
8	Onions	0.59	-18.37	-8.79	4.99
9	Wheat	0.61	12.63	-3.52	2.11
10	Pulse Gram	0.17	18.20	-2.34	0.35
					12.28
					162.24
B. Ranked by Percentage Change					
1	Vegetable Ghee	1.03	2.18	13.15	-12.54
2	Cooking Oil	1.10	0.49	10.27	-10.39
3	Sugar	1.11	5.07	8.45	-7.71
4	Mustard Oil	0.01	2.87	4.25	-0.04
5	Fresh Fruits	1.44	3.93	4.16	-4.76
6	Beans	0.04	8.09	3.89	-0.14
7	Butter	0.09	5.93	3.61	-0.37
8	Carpets	0.03	-0.07	3.28	-0.07
9	Condiments And Spices	1.33	7.15	2.35	-3.37
10	Chicken	1.36	17.53	2.35	-2.57
					7.56
					-41.95
C. Ranked by Weights					
1	House Rent	19.26	1.88	0.00	0.00
2	Milk Fresh	7.11	0.21	-0.01	0.05
3	Readymade Food	5.52	0.74	1.64	-7.85
4	Education	4.88	0.03	0.00	0.00
5	Electricity Charges	4.56	-2.18	-13.48	52.88
6	Wheat Flour	3.01	7.42	-5.29	14.00
7	Appliances/Articles/Products For P	2.98	0.54	0.51	-1.32
8	Motor Fuel	2.91	1.94	0.17	-0.56
9	Cotton Cloth	2.22	0.36	0.64	-1.24
10	Meat	2.04	0.76	0.20	-0.41
					54.48
					55.56
Note: Weighted contribution is estimated by multiplying the weights by the price change of an item; this is then reported as a share in MoM change in Urban CPI, which is -1.1 percent in February 2020.					

Table A6: Top and Bottom Fifteen Contributors to Urban CPI Inflation (YoY) in February 2020					
Top 15 Contributors			YoY Change		Weighted Contribution (%)
Items/ Contributors	Weights	Feb-19	Feb-20		
Ranked by Weighted Contribution					
1	House Rent	19.26	6.34	5.63	10.05
2	Motor Fuel	2.91	8.44	26.82	7.52
3	Fresh Vegetables	1.53	-1.79	61.89	6.91
4	Gas Charges	1.08	38.63	54.84	6.27
5	Milk Fresh	7.11	5.19	8.35	4.99
6	Readymade Food	5.52	4.48	8.59	4.22
7	Wheat Flour	3.01	1.79	17.36	4.06
8	Education	4.88	6.97	7.49	3.72
9	Condiments And Spices	1.33	17.72	25.59	3.27
10	Vegetable Ghee	1.03	6.50	33.57	2.97
11	Sugar	1.11	11.51	36.90	2.92
12	Onions	0.59	-32.97	102.75	2.87
13	Cooking Oil	1.10	10.60	26.89	2.59
14	Meat	2.04	8.43	13.28	2.57
15	Cotton Cloth	2.22	6.02	13.52	2.56
Total		54.73			67.48
Bottom 15 Contributors					
1	Tomatoes	0.35	224.55	-61.04	-4.08
2	Electricity Charges	4.56	13.38	-4.09	-1.59
3	Eggs	0.51	10.28	-10.30	-0.51
4	Dental Services	0.02	6.19	-0.73	0.00
5	Postal Services	0.02	14.05	0.00	0.00
6	Therapeutic Appliances And	0.01	1.94	0.15	0.00
7	Major Tools & Equipments	0.01	6.16	7.59	0.01
8	Accommodation Services	0.13	3.36	0.55	0.01
9	Electrical Appliances For Personal	0.05	3.05	2.17	0.01
10	Motor Vehicle Tax	0.05	20.61	2.19	0.01
11	Carpets	0.03	2.53	6.03	0.01
12	Mustard Oil	0.01	2.48	15.49	0.02
13	Plastic Products	0.05	5.01	4.20	0.02
14	Dessert Preparation	0.04	6.23	6.60	0.02
15	Newspapers	0.07	31.37	3.88	0.03
Total		5.89			-6.04

Table A7: Top and Bottom Fifteen Contributors to Urban CPI Inflation (MoM) in February 2020

<u>Top 15 Contributors</u>		<u>MoM Change</u>		Weighted Contribution (%)	
Items/ Contributors	Weights	Jan-20	Feb-20		
Ranked by Weighted Contribution					
1	Electricity Charges	4.56	-2.18	-13.48	52.88
2	Tomatoes	0.35	-8.36	-60.27	36.07
3	Fresh Vegetables	1.53	11.70	-11.48	21.40
4	Eggs	0.51	14.28	-26.36	14.44
5	Wheat Flour	3.01	7.42	-5.29	14.00
6	Liquefied Hydrocarbons	0.51	26.17	-13.53	8.79
7	Potatoes	0.45	-3.69	-12.91	7.21
8	Onions	0.59	-18.37	-8.79	4.99
9	Wheat	0.61	12.63	-3.52	2.11
10	Pulse Gram	0.17	18.20	-2.34	0.35
11	Fish	0.39	1.19	-0.84	0.28
12	Besan	0.08	12.09	-2.33	0.17
13	Construction Input Items	0.38	-0.08	-0.24	0.09
14	Personal Effects N.E.C.	0.94	3.52	-0.05	0.05
15	Milk Fresh	7.11	0.21	-0.01	0.05
Total		21.17			162.88
<u>Bottom 15 Contributors</u>					
1	Vegetable Ghee	1.03	2.18	13.15	-12.54
2	Cooking Oil	1.10	0.49	10.27	-10.39
3	Readymade Food	5.52	0.74	1.64	-7.85
4	Sugar	1.11	5.07	8.45	-7.71
5	Fresh Fruits	1.44	3.93	4.16	-4.76
6	Condiments And Spices	1.33	7.15	2.35	-3.37
7	Chicken	1.36	17.53	2.35	-2.57
8	Appliances/Articles/Products For P	2.98	0.54	0.51	-1.32
9	Cotton Cloth	2.22	0.36	0.64	-1.24
10	Readymade Garments	1.32	0.16	0.85	-0.98
11	Washing Soap/Detergents/Match Box	1.41	0.24	0.68	-0.84
12	Woolen Cloth	0.84	3.08	0.88	-0.63
13	Motor Fuel	2.91	1.94	0.17	-0.56
14	Drugs And Medicines	1.07	0.61	0.46	-0.47
15	Rice	1.18	1.20	0.43	-0.46
Total		26.84			-55.68

Table A8: Top and Bottom Fifteen Contributors to MoM Urban CPI Food Inflation in February 2020					
Top 15 Contributors			MoM Change		Weighted Contribution (%)
Items/ Contributors	Weights	Jan-20	Feb-20		
Ranked by Weighted Contribution					
1	Tomatoes	0.35	-8.36	-60.27	36.07
2	Fresh Vegetables	1.53	11.70	-11.48	21.40
3	Eggs	0.51	14.28	-26.36	14.44
4	Wheat Flour	3.01	7.42	-5.29	14.00
5	Potatoes	0.45	-3.69	-12.91	7.21
6	Onions	0.59	-18.37	-8.79	4.99
7	Wheat	0.61	12.63	-3.52	2.11
8	Pulse Gram	0.17	18.20	-2.34	0.35
9	Fish	0.39	1.19	-0.84	0.28
10	Besan	0.08	12.09	-2.33	0.17
11	Milk Fresh	7.11	0.21	-0.01	0.05
12	Gur	0.04	9.49	0.10	0.00
13	Cigarettes	0.72	0.04	0.01	0.00
14	Milk Products	0.64	0.04	0.02	-0.01
15	Ice Cream	0.10	0.60	0.14	-0.01
Total		16.29			101.04
Bottom 15 Contributors					
1	Vegetable Ghee	1.03	2.18	13.15	-12.54
2	Cooking Oil	1.10	0.49	10.27	-10.39
3	Readymade Food	5.52	0.74	1.64	-7.85
4	Sugar	1.11	5.07	8.45	-7.71
5	Fresh Fruits	1.44	3.93	4.16	-4.76
6	Condiments And Spices	1.33	7.15	2.35	-3.37
7	Chicken	1.36	17.53	2.35	-2.57
8	Rice	1.18	1.20	0.43	-0.46
9	Sweet Meat	0.35	0.46	1.29	-0.43
10	Milk Powder	0.31	0.99	1.54	-0.41
11	Meat	2.04	0.76	0.20	-0.41
12	Bakery And Confectionary	0.48	0.36	0.97	-0.40
13	Pulse Moong	0.17	19.74	2.27	-0.37
14	Butter	0.09	5.93	3.61	-0.37
15	Nimco	0.12	0.98	2.00	-0.20
Total		17.65			-52.23

Table A9: Top and Bottom Fifteen Contributors to MoM Urban CPI Non-food Inflation in February 2020

<u>Top 15 Contributors</u>		Weights	<u>MoM Change</u>		Weighted Contribution (%)
Items/ Contributors			Jan-20	Feb-20	
Ranked by Weighted Contribution					
1	Electricity Charges	4.56	-2.18	-13.48	52.88
2	Liquefied Hydrocarbons	0.51	26.17	-13.53	8.79
3	Construction Input Items	0.38	-0.08	-0.24	0.09
4	Electrical Appliances For Personal	0.94	3.52	-0.05	0.05
5	House Rent	19.26	1.88	0.00	0.00
6	Woolen Readymade Garments	0.43	2.51	0.00	0.00
7	Education	4.88	0.03	0.00	0.00
8	Accommodation Services	0.05	0.21	0.00	0.00
9	Text Books	0.67	0.01	0.00	0.00
10	Gas Charges	1.08	0.00	0.00	0.00
11	Communication Services	1.88	0.00	0.00	0.00
12	Newspapers	0.07	0.00	0.00	0.00
13	Motor Vehicle Tax	0.05	0.00	0.00	0.00
14	Postal Services	0.02	0.00	0.00	0.00
15	Appliances/Articles/Products For P	0.00	0.00	0.00	0.00
Total		34.76			61.82
<u>Bottom 15 Contributors</u>					
1	Personal Grooming Services	2.98	0.54	0.51	-1.32
2	Cotton Cloth	2.22	0.36	0.64	-1.24
3	Readymade Garments	1.32	0.16	0.85	-0.98
4	Washing Soap/Detergents/Match Box	1.41	0.24	0.68	-0.84
5	Woolen Cloth	0.84	3.08	0.88	-0.63
6	Motor Fuel	2.91	1.94	0.17	-0.56
7	Drugs And Medicines	1.07	0.61	0.46	-0.47
8	Hosiery	0.41	0.22	1.24	-0.44
9	Solid Fuel	0.42	2.64	1.19	-0.40
10	Household Equipments	1.00	0.32	0.41	-0.36
11	Furniture And Furnishing	0.48	0.23	0.82	-0.34
12	Household Servant	0.77	0.00	0.39	-0.27
13	Dopatta	0.17	0.87	1.50	-0.22
14	Tailoring	1.07	1.40	0.19	-0.19
15	Construction Wage Rates	0.20	0.08	0.84	-0.17
Total		17.28			-8.42

Table A10: Top Ten Contributors to Rural CPI Inflation (YoY) in February 2020					
Items/ Contributors		Weights	YoY Change		Weighted Contribution (%)
			Feb-19	Feb-20	
A. Ranked by Weighted Contribution					
1	Fresh Vegetables	2.09	-10.48	69.89	8.45
2	Wheat	3.47	5.32	33.70	7.53
3	Milk Fresh	10.38	4.31	8.23	5.88
4	Vegetable Ghee	2.38	9.94	32.44	5.63
5	Motor Fuels	2.49	7.63	27.37	5.24
6	Wheat Flour	3.43	1.60	20.71	4.41
7	Sugar	2.03	15.57	35.19	4.18
8	Solid Fuel	4.48	3.20	12.94	4.03
9	House Rent	8.61	5.74	6.29	4.01
10	Potatoes	0.74	-24.43	107.71	3.93
Total		40.11			53.28
B. Ranked by Percentage Change					
1	Potatoes	0.74	-24.43	107.71	3.93
2	Onions	0.90	-33.70	95.50	3.16
3	Pulse Moong	0.25	9.90	90.26	1.12
4	Fresh Vegetables	2.09	-10.48	69.89	8.45
5	Pulse Mash	0.15	3.22	47.20	0.28
6	Gur	0.15	16.90	35.77	0.32
7	Sugar	2.03	15.57	35.19	4.18
8	Condiments And Spices	1.49	14.92	34.64	3.58
9	Wheat	3.47	5.32	33.70	7.53
10	Vegetable Ghee	2.38	9.94	32.44	5.63
Total		13.66			38.18
C. Ranked by Weights					
1	Milk Fresh	10.38	4.31	8.23	5.88
2	House Rent	8.61	5.74	6.29	4.01
3	Solid Fuel	4.48	3.20	12.94	4.03
4	Readymade Food	3.80	6.61	11.01	3.11
5	Wheat	3.47	5.32	33.70	7.53
6	Electricity Charges	3.44	13.38	-4.09	-0.96
7	Wheat Flour	3.43	1.60	20.71	4.41
8	Cotton Cloth	2.84	10.03	14.50	3.17
9	Motor Fuels	2.49	7.63	27.37	5.24
10	Vegetable Ghee	2.38	9.94	32.44	5.63
Total		45.32			42.03
Note: Weighted contribution is estimated by multiplying the weights by the price change of an item; this is then reported as a share in YoY change in Rural CPI, which is 14.2 percent in February 2020.					

Table A11: Top Ten Contributors to Rural CPI Inflation (MoM) in February 2020

Items/ Contributors		Weights	MoM Change		Weighted Contribution (%)
			Jan-20	Feb-20	
A. Ranked by Weighted Contribution					
1	Tomatoes	0.51	-8.22	-57.55	59.73
2	Electricity Charges	3.44	-2.18	-13.48	44.92
3	Fresh Vegetables	2.09	15.39	-13.94	42.43
4	Potatoes	0.74	1.96	-15.43	17.62
5	Eggs	0.57	12.89	-20.16	13.13
6	Wheat Flour	3.43	6.16	-3.57	12.15
7	Onions	0.90	-20.52	-11.39	10.61
8	Liquefied Hydrocarbons	1.00	17.55	-6.70	8.27
9	Gur	0.15	12.84	-5.54	0.92
10	Construction Input Items	0.63	-0.32	-1.36	0.80
		13.46			210.57
B. Ranked by Percentage Change					
1	Sugar	2.03	4.36	8.00	-15.15
2	Vegetable Ghee	2.38	6.55	6.23	-17.19
3	Condiments And Spices	1.49	4.85	5.99	-10.03
4	Chicken	1.46	17.30	5.76	-8.02
5	Pulse Mash	0.15	6.31	5.13	-0.55
6	Pulse Masoor	0.21	6.77	4.27	-0.68
7	Pulse Moong	0.25	18.70	3.94	-1.14
8	Fresh Fruits	1.45	-0.24	3.56	-4.61
9	Beans	0.09	4.54	2.99	-0.29
10	Doctor (Mbbs) Clinic Fee	0.51	1.22	2.80	-1.72
		10.02			-59.39
C. Ranked by Weights					
1	Milk Fresh	10.38	0.83	0.14	-1.37
2	House Rent	8.61	2.19	0.00	0.00
3	Solid Fuel	4.48	5.19	1.64	-7.25
4	Readymade Food	3.80	1.10	2.21	-8.63
5	Wheat	3.47	9.07	1.64	-6.14
6	Electricity Charges	3.44	-2.18	-13.48	44.92
7	Wheat Flour	3.43	6.16	-3.57	12.15
8	Cotton Cloth	2.84	0.00	1.30	-4.09
9	Motor Fuels	2.49	2.06	0.12	-0.39
10	Vegetable Ghee	2.38	6.55	6.23	-17.19
		45.32			12.01
Note: Weighted contribution is estimated by multiplying the weights by the price change of an item; this is then reported as a share in MoM change in Rural CPI, which is -1.0 percent in February 2020.					

Table A12: Top and Bottom Fifteen Contributors to Rural CPI Inflation (YoY) in February 2020					
Top 15 Contributors		YoY Change			Weighted Contribution (%)
Items/ Contributors	Weights	Feb-19	Feb-20		
Ranked by Weighted Contribution					
1	Fresh Vegetables	2.09	-10.48	69.89	8.45
2	Wheat	3.47	5.32	33.70	7.53
3	Milk Fresh	10.38	4.31	8.23	5.88
4	Vegetable Ghee	2.38	9.94	32.44	5.63
5	Motor Fuels	2.49	7.63	27.37	5.24
6	Wheat Flour	3.43	1.60	20.71	4.41
7	Sugar	2.03	15.57	35.19	4.18
8	Solid Fuel	4.48	3.20	12.94	4.03
9	House Rent	8.61	5.74	6.29	4.01
10	Potatoes	0.74	-24.43	107.71	3.93
11	Condiments And Spices	1.49	14.92	34.64	3.58
12	Cotton Cloth	2.84	10.03	14.50	3.17
13	Onions	0.90	-33.70	95.50	3.16
14	Readymade Food	3.80	6.61	11.01	3.11
15	Personal Effects N.E.C.	1.21	13.57	23.39	2.23
Total		50.34			68.52
Bottom 15 Contributors					
1	Tomatoes	0.51	162.69	-45.26	-2.86
2	Electricity Charges	3.44	13.38	-4.09	-0.96
3	Eggs	0.57	8.45	-5.33	-0.23
4	Motor Vehicle Tax	0.02	27.98	0.00	0.00
5	Newspapers	0.02	49.59	0.00	0.00
6	Accommodation Services	0.14	0.00	0.00	0.00
7	Garbage Collection	0.01	0.00	1.15	0.00
8	Dessert Preparation	0.01	3.59	5.85	0.01
9	Major Tools And Equipments	0.03	5.91	2.53	0.01
10	Dental Services	0.02	0.06	4.75	0.01
11	Honey	0.03	6.96	3.86	0.01
12	Cleaning And Laundering	0.02	4.53	11.68	0.01
13	Mustard Oil	0.01	6.54	15.30	0.01
14	Postal Services	0.01	0.08	31.47	0.02
15	Ice Cream	0.06	6.80	7.12	0.03
Total		4.89			-3.95

Table A13: Top and Bottom Fifteen Contributors to Rural CPI Inflation (MoM) in February 2020

<u>Top 15 Contributors</u>		Weights	<u>MoM Change</u>		Weighted Contribution (%)
Items/ Contributors			Jan-20	Feb-20	
Ranked by Weighted Contribution					
1	Tomatoes	0.51	-8.22	-57.55	59.73
2	Electricity Charges	3.44	-2.18	-13.48	44.92
3	Fresh Vegetables	2.09	15.39	-13.94	42.43
4	Potatoes	0.74	1.96	-15.43	17.62
5	Eggs	0.57	12.89	-20.16	13.13
6	Wheat Flour	3.43	6.16	-3.57	12.15
7	Onions	0.90	-20.52	-11.39	10.61
8	Liquefied Hydrocarbons	1.00	17.55	-6.70	8.27
9	Gur	0.15	12.84	-5.54	0.92
10	Construction Input Items	0.63	-0.32	-1.36	0.80
11	Pulse Gram	0.28	14.21	-1.48	0.41
12	Fish	0.26	-0.94	-0.98	0.25
13	Text Books	0.50	0.10	-0.46	0.20
14	House Rent	8.61	2.19	0.00	0.00
15	Marriage Hall Charges	2.25	0.60	0.00	0.00
Total		25.37			211.44
<u>Bottom 15 Contributors</u>					
1	Vegetable Ghee	2.38	6.55	6.23	-17.19
2	Sugar	2.03	4.36	8.00	-15.15
3	Condiments And Spices	1.49	4.85	5.99	-10.03
4	Readymade Food	3.80	1.10	2.21	-8.63
5	Chicken	1.46	17.30	5.76	-8.02
6	Solid Fuel	4.48	5.19	1.64	-7.25
7	Wheat	3.47	9.07	1.64	-6.14
8	Fresh Fruits	1.45	-0.24	3.56	-4.61
9	Cotton Cloth	2.84	0.00	1.30	-4.09
10	Personal Grooming Services	1.54	0.13	2.26	-3.62
11	Appliances/Articles/Products For	2.27	0.67	1.05	-2.19
12	Transport Services	1.80	-0.56	1.22	-2.14
13	Cooking Oil	0.60	6.48	2.54	-1.76
14	Doctor (Mbbs) Clinic Fee	0.51	1.22	2.80	-1.72
15	Footwear	1.92	1.91	0.89	-1.63
Total		32.04			-94.18

Table A14: Top and Bottom Fifteen Contributors to MoM Rural CPI Food Inflation in February 2020					
Top 15 Contributors		MoM Change		Weighted Contribution (%)	
Items/ Contributors	Weights	Jan-20	Feb-20		
Ranked by Weighted Contribution					
1	Tomatoes	0.51	-8.22	-57.55	59.73
2	Fresh Vegetables	2.09	15.39	-13.94	42.43
3	Potatoes	0.74	1.96	-15.43	17.62
4	Eggs	0.57	12.89	-20.16	13.13
5	Wheat Flour	3.43	6.16	-3.57	12.15
6	Onions	0.90	-20.52	-11.39	10.61
7	Gur	0.15	12.84	-5.54	0.92
8	Pulse Gram	0.28	14.21	-1.48	0.41
9	Fish	0.26	-0.94	-0.98	0.25
10	Marriage Hall Charges	2.25	0.60	0.00	0.00
11	Ice Cream	0.06	0.78	0.00	0.00
12	Nimco	0.08	0.00	0.00	0.00
13	Dessert Preparation	0.01	0.22	0.27	0.00
14	Mustard Oil	0.01	5.13	1.63	-0.02
15	Wheat Products	0.11	1.67	0.39	-0.04
Total		11.45			157.18
Bottom 15 Contributors					
1	Vegetable Ghee	2.38	6.55	6.23	-17.19
2	Sugar	2.03	4.36	8.00	-15.15
3	Condiments And Spices	1.49	4.85	5.99	-10.03
4	Readymade Food	3.80	1.10	2.21	-8.63
5	Chicken	1.46	17.30	5.76	-8.02
6	Wheat	3.47	9.07	1.64	-6.14
7	Fresh Fruits	1.45	-0.24	3.56	-4.61
8	Cooking Oil	0.60	6.48	2.54	-1.76
9	Milk Fresh	10.38	0.83	0.14	-1.37
10	Pulse Moong	0.25	18.70	3.94	-1.14
11	Rice	1.55	1.77	0.47	-0.91
12	Bakery And Confectionary	0.37	0.99	2.50	-0.88
13	Pulse Masoor	0.21	6.77	4.27	-0.68
14	Milk Products	0.96	0.14	0.60	-0.55
15	Pulse Mash	0.15	6.31	5.13	-0.55
Total		30.56			-77.61

Table A15: Top and Bottom Fifteen Contributors to MoM Rural CPI Non-food Inflation in February 2020

<u>Top 15 Contributors</u>		Weights	<u>MoM Change</u>		Weighted Contribution (%)
Items/ Contributors			Jan-20	Feb-20	
Ranked by Weighted Contribution					
1	Electricity Charges	3.44	-2.18	-13.48	44.92
2	Liquefied Hydrocarbons	1.00	17.55	-6.70	8.27
3	Construction Input Items	0.63	-0.32	-1.36	0.80
4	Text Books	0.50	0.10	-0.46	0.20
5	House Rent	8.61	2.19	0.00	0.00
6	Medical Tests	0.40	0.40	0.00	0.00
7	Major Tools And Equipments	0.03	0.64	0.00	0.00
8	Dental Services	0.02	0.00	0.00	0.00
9	Garbage Collection	0.01	0.00	0.00	0.00
10	Motor Vehicle Tax	0.02	0.00	0.00	0.00
11	Newspapers	0.02	0.00	0.00	0.00
12	Communication Services	1.65	0.00	0.00	0.00
13	Postal Services	0.01	0.00	0.00	0.00
14	Water Supply	0.06	0.00	0.00	0.00
15	Accommodation Services	0.14	0.00	0.00	0.00
Total		16.54			54.19
<u>Bottom 15 Contributors</u>					
1	Solid Fuel	4.48	5.19	1.64	-7.25
2	Cotton Cloth	2.84	0.00	1.30	-4.09
3	Personal Grooming Services	1.54	0.13	2.26	-3.62
4	Appliances/Articles/Products For	2.27	0.67	1.05	-2.19
5	Transport Services	1.80	-0.56	1.22	-2.14
6	Doctor (Mbbs) Clinic Fee	0.51	1.22	2.80	-1.72
7	Footwear	1.92	1.91	0.89	-1.63
8	Education	2.13	0.00	0.42	-0.93
9	Washing Soaps, Detergents And	1.70	0.94	0.55	-0.88
10	Hosiery	0.43	1.89	1.75	-0.86
11	Drugs And Medicines	1.58	0.76	0.45	-0.77
12	Woolen Readymade Garments	0.54	3.76	1.17	-0.63
13	Tailoring	1.30	1.07	0.46	-0.61
14	Furniture And Furnishing	0.58	1.78	1.01	-0.58
15	Household Equipments	1.28	0.23	0.44	-0.56
Total		24.89			-28.48

Table A16: Distribution of Price Changes (YoY) - Selected Urban CPI Items: February 2020

Groups	Decrease or no change	Subdued increase (Greater than 0% but less than 5%)	Moderate increase (5% but less than 10%)	Double digit increase (10% or more)
Food & Non-Alcoholic Beverages	Tomatoes, Eggs Farm, Bananas (Kela) Local, Gram Whole Yellow (Average Quality)	Fruit Juice Small Packet 250 Ml, Cumin Seed (Zeera) White National 50 Gm Packet	Rice Irri-6/9 (Sindh/Punjab), Tea Lipton Yellow Label 190 Gm Packet, Fish Rahu (Medium Size)	Garlic (Lehsun), Onions, Cardamom Small (Average Quality), Ginger (Adrak), Potatoes, Chillies (Green), Pulse Moong (Washed), Pulse Mash (Washed), Butter Local Packed 50 Gm
Alcoholic Beverages & Tobacco			Pan Prepared (Sweet With Beetle Nuts)	Cigarettes Capstan 20'S Packet, Cigarettes Gold Leaf 20'S Packet
Clothing & Footwear	Gents Sponge Chappal Bata, Ladies Sandal Bata, Ladies Sponge Chappal Bata, Gents Shoes Servis, Children Shoes Power Lite Bata	Pant Cloth Wash & Wear (Average Quality), Socks Nylon Local (Average Quality), Women Shalwar Kameez (Average Quality), Gents Shoes Paul Bata	Brassier (Average Quality), Shirt Boy Length 24"/26", Lawn Printed Gul Ahmed/Al Karam, Awami Suit Gents Wash & Wear (Average Quality)	Gents Sandal Bata, Shoe Repair Full Sole, Heavy Weight Suiting Lawrance Pur (Average Quality), Long Cloth 57" Gul Ahmed/Al Karam, Georgette (Average Quality), Dopatta Cotton (Average Quality), Cheetaah 50 Size 3-5 Servis, Linen, Ladies (Average Quality)
Housing, Water, Elect, Gas & other Fuels	Electricity Charges 51-100 Units, Cement (Local) 50 Kg Bag, Electricity Charges 101-300 Units, Electricity Charges 301-700 Units	Cement Blocks (6"X8"X12"), Electricity Charges Above 700 Units	Mason Wage Rate, Sand (Black Pit), Charges For Refuse/Waste Collection, Bajri, Plumber Wage Rate, Firewood Whole, House Rent Combined	Gas Charges 6.7438 - 10.1157 Mmbtu, Gas Charges 10.1157 - 13.4876 Mmbtu, Gas Charges Combined, Gas Charges Above 13.4876 Mmbtu, Synthetic Enamel Ici Balti 3.64 Litre, Bricks New 1St Class, Lpg 11.67 Kg Cylinder
Furnishing & Household Equip. Maintenance etc		Lota Plastic Medium Size (Average Quality), Surf Excel 500 Gm Polybag, Washing Machine With Spinner (Super Asia Or Similar Brand) (Sn)	Split Air Conditioner Orient/Lg/Dawlance 1.5 Ton, Sewing Machine (Sn) Without Cover, Dinner Set Plastic 72 Pieces Super Quality	Tube Light Philips 40 Watt, Phenyl Tyfon/Finis 2.75 Litre Bottle, Robin Blue Liquid 75 Ml Bottle, Geyser Super Asia Large Size 30 Gallons (Gas), Central Table Set With Glass Top, Chair Plastic (Chairman) (Average Quality)
Health	Dental Extraction Fee, Physiotherapist Fee Per Visit, Hydryllin Syrup 120 Ml Bottle	Dental Surgeon Fee Per Visit, Ecg Charges, Entox Tablets, Cost Of Surgery (C-Section)	Panadol Tablets Plain, Blood Test (Cp) Charges, Urine Test (Dr) Charges, Betnovate-N Ointment 10 Gm Tube	Inderal Tablets 10 Mg, Daonil Tablets 5 Mg, Septran Tablets, Phenergan Syrup 120 Ml Bottle, Calpol Syrup 100 Ml Bottle, Dettol Medium Bottle, Cac 1000 Tablets Sandoz Bottle
Transport		Motorcycle United/Unique 70 Cc, Tire Motorcycle Cd 70 (Back Wheel), Car Tax 800 Cc To 1500 Cc, Bus Fare Outside City (Non Ac)	Bus Fare Outside City (Ac), Motorcycle Honda Cd 70, Auto Rickshaw Fare, Motorcycle Service Charges	Suzuki Fare Maximum Within City, Car Honda Civic Turbo 1.5 Vtec, Bus Fare Maximum Within City, Petrol Super, Train Fare Business Class Per Person, Mini Bus Fare Maximum Within City, Car Suzuki 1000 Cc
Communication	Courier Charges Minimum Within Zone Outside City (Tcs), Telephone Call Charges		Mobile Set With Rear Camera And Without Touch Screen	Internet Charges (Dsl) 1 Mb (Unlimited)
Recreation & Culture	Cable Charges, Newspaper Daily Jang, Mag The Weekly (Magazine)	Exercise Book (With Lines) 80 To 100 Pages, English Book Class Xi Complete Set, Recreational Park Charges (Minimum Playland Ticket)	Lead Pencil Goldfish, English Book Ba/B.Sc, Led Sony/Samsung 32" Colored, Mathematics Book Class Xi (Text Book Board), Pen Ink Dollar 57 Ml Bottle	English Book Class Ix And X, Akhbar-E-Jehan Weekly, Ballpoint Pen Local, Newspaper Daily Dawn, Urdu Book Class Xi/Inter, English Book Class Vi, Photostat Paper 70 Gm, Mathematics Book Class Ix And X (Text Book Board)
Education	Coaching Fee For Class Xi/Xii Commerce Group	Government College Fee First Year, Private Medical College/University Tuition Fee For Mbbs (1St Year)	Private School Fee English Medium Average Standard (Class V)	Government Medical College/University Tuition Fee For Mbbs (1St Year), Private School Fee English Medium Average Standard (Class I)
Restaurant & Hotels		Cooked Chicken At Average Hotel	Bread Tandoori Standard Size, Chicken Biryani Full/Double	Cooked Daal At Average Hotel, Tea Prepared Ordinary, Cooked Beef At Average Hotel
Miscellaneous	Toilet Soap Lux 75 Gm	Shampoo Sun Silk/Pantene 90 Ml Bottle, Artificial Jewelry (Locket Set) (Average Quality)	Shaving Charges, Tooth Paste Colgate 75 Gm, Talcum Powder Viceroy/Black Cat Large Size	Gold Tezabi 24 Carett, Pampers (Medium Size), Silver Tezabi 24 Carett, Lipstick Swiss Miss/Medora (Medium), Tooth Brush (Shield), Disposable Razor Gillette Blue Ii

Table A17: Distribution of Price Changes (YoY) - Selected Rural CPI Items: February 2020

Groups	Decrease or no change	Subdued increase (Greater than 0% but less than 5%)	Moderate increase (5% but less than 10%)	Double digit increase (10% or more)
Food & Non-Alcoholic Beverages	Tomatoes, Eggs Farm, Gram Whole Yellow (Average Quality), Grapes (Angoor) (Average Quality)	Honey Marhaba Bottle 500 Gm, Lemon, Nimko (Loose, Average Quality)	Tea Lipton Yellow Label 190 Gm Packet, Jam-E-Shireen Standard Size (800 Ml), Beef With Bone (Average Quality)	Garlic (Lehsun), Ginger (Adrak), Chillies (Green), Potatoes, Peas (Matar), Onions, Pulse Moong (Washed), Carrot (Gajar), Turnip (Shalgham), Pulse Mash (Washed), Chillies Powder Loose
Alcoholic Beverages & Tobacco			Tobacco Hukka Twisted, Pan Prepared (Sweet With Beetle Nuts)	Cigarettes Capstan 20'S Packet, Cigarettes Gold Leaf 20'S Packet, Chewing Tobacco (Niswar)
Clothing & Footwear		Tailoring Charges Simple Suit (Female)	Footware Children Local (Average Quality), Linen, Ladies (Average Quality), Footware Ladies Local (Average Quality), Pullover Ladies (Average Quality)	Dopatta Cotton (Average Quality), Brassier (Average Quality), Lawn Printed (Average Quality), Long Cloth, Full Pant Boy Length 24"/26", Shirt Boy Length 24"/26", Shirting (Average Quality), Shoe Repair Full Sole, Shoe Polish Charges
Housing, Water, Elect, Gas & other Fuels	Cement (Local) 50 Kg Bag, Electricity Charges 51-100 Units, Electricity Charges 101-300 Units, Electricity Charges 301-1000 Units	Charges For Refuse/Waste Collection, Electricity Charges Above 1000 Units	Carpenter Wage Rate, Electrician Charges, Bajri, Plumber Wage Rate, House Rent Combined	Water Charges Per House, Sand (Black Pit), Bricks New 1St Class, Unskilled Labor Wage Rate, Coal, Lpg 11.67 Kg Cylinder, Firewood Whole, Kerosene Oil, Mason Wage Rate, Painter Wage Rate
Furnishing & Household Equip. Maintenance etc		Readymade Quilt (3 Kg), Water Pump Golden Monoblock/Donkey 0.5 H.P	Water Cooler 9/10 Litre Plastic Super Quality, Lota Plastic Medium Size (Average Quality)	Tube Light Philips 40 Watt, Robin Blue Liquid 75 Ml Bottle, Aluminium Cooking Pan (Degchi), Washing Soap 250 Gm Cake (Specify Name), Boot Polish Cherry/Kiwi 42 Ml, Match Box, Express Washing Powder 1 Kg Polybag
Health	Hydriyllin Syrup 120 Ml Bottle	Dental Surgeon Fee Per Visit, Cost Of Surgery (C-Section), Physiotherapist Fee Per Visit	X-Ray (Chest) Charges	Daonil Tablets 5 Mg, Cac 1000 Tablets Sandoz Bottle, Inderal Tablets 10 Mg, Doctor (Mbbs) Clinic Fee, Amoxil Capsule 250 Mg, Blood Test (Cp) Charges, Dettol Medium Bottle
Transport	Car Tax 800 Cc To 1500 Cc	Motorcycle Service Charges, Air Fare Economy Class Per Kilometer	Motorcycle Honda Cd 70, Tire Cycle	Petrol Super, Hi-Speed Diesel, Cng, Train Fare Economy Per Person, Tire Car Mehran Tubeless (General), Car Suzuki 800 Cc Without Ac, Mobil Oil (Havoline 20W-50), Chingchi Rickshaw Charges, Minimum
Communication	Telephone Call Charges, Mobile Call Charges	Mobile Set With Rear Camera And Without Touch Screen		Postal Registration Charges, Internet Charges (Dsl) 1 Mb (Unlimited)
Recreation & Culture	Newspaper Daily Jang	Urdu Books Class Ix And X (Text Book Board), English Books Class Xi Complete Set, Personal Computer With Led Monitor (17") Dell/Hp/Acer Core I5, Cable Charges	Ballpoint Pen Local, Led Sony/Samsung 32" Colored, Lead Pencil Goldfish, Urdu Books Class V (Text Book Board), Exercise Book (With Lines) 80 To 100 Pages	Pets Feed, English Books Class Vi, English Books Class Ix And X
Education	Vocational Training Basic Computer Short Course Fee (3 Months)	Coaching Fee For Class Ix/X Science Group	Private School Fee English Medium Average Standard (Class V)	Private School Fee English Medium Average Standard (Class Vi)
Restaurant & Hotels		Pizza Chicken Medium Size (Average Quality)	Bread Tandoori Standard Size, Cooked Chicken At Average Hotel	Cooked Daal At Average Hotel, Tea Prepared Ordinary, Chicken Biryani Full/Double, Chicken Roast (Full) (Average Quality)
Miscellaneous		Hair Removing Cream (Eu-Cream) 30Ml Tube, Shampoo Sun Silk/Pantene 90 Ml Bottle	Tooth Paste Colgate 75 Gm, Purse Ladies Medium Size (Average Quality), Talcum Powder Viceroy/Black Cat	Gold Tezabi 24 Carett, Shaving Charges, Disposable Razor Gillette Blue II, Hair Cut Charges For Men, Blade Treet Ordinary (10 No. Packet), Hair Color (Kala Kola)

Table A18: Distribution of Price Changes (YoY) - WPI Items: February 2020				
Groups	Decrease or no change	Subdued increase (Greater than 0% but less than 5%)	Moderate increase (5% but less than 10%)	Double digit increase (10% or more)
Agriculture Forestry & Fishery Products	Hides, Skins & Fur Skins, Raw, Eggs, Raw Animal Materials / Wool	Fuel Wood In Logs	Raw Milk From Bovine Animals, Millet / Bajra, Dry Fruits, Fresh Fruits, Fibre Crops	Edible Roots / Potatoes, Stimulant & Spice Crops, Vegetables, Cotton Seeds, Wheat, Pulses, Sorghum / Jowar, Sugar Crops, Other Oil Seeds, Fish Live Fresh Or Chilled, Maize, Unmanufactured Tobacco
Ores & Minerals, Electricity Gas & Water	Coal Not Agglomerated			Natural Gas Liquefied, Salt & Pure Sodium Chloride, Electrical Energy
Food Products, Beverages and Tobacco, Textiles, Apparel and Leather Products	Vegetables & Fruit Juice, Nylon Yarn, Footwears, Tobacco Products	Bed Sheets, Hosiery Products, Silk & Rayon Fabrics, Other Fabrics, Sugar Confectionary, Blended Yarn, Other Food Products, Quilts, Blankets, Leather Without Hair	Ice Cream, Processed Liquid Milk, Coffee & Tea, Mineral Water, Fruit Juices, Other Leather N.E.C, Cotton Yarn, Beverages, Towels	Sugar Refined, Vegetable Ghee, Chocolate, Other Cereal Flour, Wheat Flour, Milk & Cream In Solid Form, Synthetic Carpets, Vegetable Oils Refined, Woolen Carpets, Oil Cakes, Dried Fruits & Nuts, Spices, Cotton Fabrics, Readymade Garments, Woven Fabrics, Meat Of Animals, Dairy Products N.E.C
Other Transportable Goods except Metal Products, Machinery and Equipments	Furnace Oil, Soaps & Detergents, Hard Board	Matches, Glass Sheets, Plastic Products, Insecticides, Cement, Fertilizers, Timber	Auto Tyres, Mobil Oil, Other Glass Articles, Ceramics & Sanitary Fixture, Chemicals, Pesticides, Paints & Varnishes	Dyeing Material, Bed Foam, Motor Spirit, Medicines, Printing Paper, Kerosine Oil, Diesel Oil, Bricks, Blocks & Tiles, Steel Bar & Sheets
Metal Product Machinery & Equipment	Vacuum Pumps, Engines & Motors, Concrete Mixture, Tractors	Chuff Cutter, Radio & Television, Motorcycles	Lighting Equipments, Air Conditioners, Electric Wires	Motor Vehicles, Fridge, Washm, Sewm, Fans, Iron, Pipe Fittings, Cultivators, Bicycles, Lathe Machines, Steel Products

Table A19: International Commodity Prices/Indices

	Nov-19	Dec-19	Jan-20	Feb-20
Energy				
Crude Oil (US\$ per barrel) *	60.4	63.4	61.6	53.3
Energy Index (2010 = 100)	74.6	76.9	74.5	65.0
Food				
Rice (\$/MT)	421.0	432.0	451.0	450.0
Wheat (\$/MT)	203.2	210.9	224.5	215.3
Sugar (US cent/ pound)^	12.80	13.41	14.15	14.78
Palm Oil (\$/MT)	685.4	763.7	810.1	728.8
Soybean Oil (\$/MT)	770.2	833.5	875.6	800.4
Non-Food Non-Energy				
Cotton Outlook 'A' Index #^	74.86	75.83	79.07	76.57
Metal Price Index (2010 = 100)	80.4	80.7	80.5	76.0
Copper (\$/MT)	5,860.0	6,077.1	6,031.2	5,687.8
Aluminum (\$/MT)	1,774.8	1,771.4	1,773.1	1,688.1
Iron Ore (\$ cents/dry MT)	85.0	92.7	95.8	87.7
Tin (\$/MT)	16,335.5	17,141.1	17,029.2	16,480.3
Nickel (\$/MT)	15,171.8	13,829.4	13,506.9	12,715.6
Zinc (\$/MT)	2,425.5	2,272.5	2,354.3	2,113.2
Lead (\$/MT)	2,021.2	1,900.5	1,923.9	1,872.5
Uranium (\$/MT)@	26.1	24.9	24.6	24.8
DAP (\$/MT)	248.0	238.2	264.9	279.4
Urea (\$/MT)	224.5	217.5	215.4	214.4

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 / pound. Both the variables have been converted to the measurement unit US cent/ pound.

\$/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 A20: National CPI Data Series Original and Seasonally Adjusted				
Original Series				
Period	FY17	FY18	FY19	FY20
Jul	103.17	107.15	114.29	123.86
Aug	102.80	107.31	113.93	125.89
Sep	103.23	108.05	113.90	126.86
Oct	104.19	109.22	116.32	129.16
Nov	104.69	109.95	116.18	130.90
Dec	104.08	109.92	115.82	130.45
Jan	104.53	110.01	116.12	133.03
Feb	105.04	109.72	117.12	131.64
Mar	106.14	109.96	119.46	
Apr	106.91	111.15	120.33	
May	106.36	111.65	121.05	
Jun	106.54	112.58	121.63	
Seasonally Adjusted Series				
Jul	102.87	106.83	113.96	123.52
Aug	102.44	106.95	113.58	125.53
Sep	102.82	107.66	113.55	126.51
Oct	103.31	108.32	115.37	128.12
Nov	103.84	109.06	115.22	129.81
Dec	104.28	110.10	116.00	130.65
Jan	104.77	110.27	116.41	133.37
Feb	105.91	110.61	118.06	132.66
Mar	106.90	110.74	120.30	
Apr	106.93	111.16	120.33	
May	106.76	112.05	121.46	
Jun	106.89	112.93	121.98	

Table A21: Urban CPI Data Series Original and Seasonally Adjusted				
Original Series				
Period	FY17	FY18	FY19	FY20
Jul	103.20	107.71	114.94	124.95
Aug	102.73	107.93	114.58	126.77
Sep	103.06	108.38	114.49	127.72
Oct	103.87	109.34	117.04	129.75
Nov	104.36	110.03	116.94	131.05
Dec	103.74	110.08	116.57	130.57
Jan	104.59	110.28	117.07	132.77
Feb	105.12	110.12	118.08	131.32
Mar	106.18	110.43	120.29	
Apr	107.20	111.94	121.29	
May	106.86	112.53	122.11	
Jun	107.08	113.34	122.52	
Seasonally Adjusted Series				
Jul	102.76	107.23	114.44	124.42
Aug	102.29	107.48	114.12	126.29
Sep	102.67	108.02	114.16	127.39
Oct	103.14	108.58	116.25	128.88
Nov	103.67	109.31	116.16	130.16
Dec	104.14	110.47	116.97	131.02
Jan	104.88	110.59	117.42	133.17
Feb	106.02	111.06	119.07	132.39
Mar	106.98	111.26	121.19	
Apr	107.12	111.85	121.17	
May	107.07	112.73	122.31	
Jun	107.30	113.56	122.73	

Table A22: Rural CPI Data Series Original and Seasonally Adjusted				
Original Series				
Period	FY17	FY18	FY19	FY20
Jul	103.12	106.30	113.30	122.22
Aug	102.90	106.37	112.96	124.56
Sep	103.49	107.54	113.01	125.55
Oct	104.68	109.05	115.23	128.28
Nov	105.18	109.83	115.03	130.67
Dec	104.59	109.68	114.70	130.28
Jan	104.44	109.60	114.68	133.42
Feb	104.91	109.11	115.68	132.13
Mar	106.09	109.25	118.21	
Apr	106.47	109.95	118.89	
May	105.60	110.33	119.45	
Jun	105.73	111.44	120.29	
Seasonally Adjusted Series				
Jul	103.04	106.21	113.22	122.16
Aug	102.66	106.15	112.76	124.37
Sep	103.03	107.12	112.63	125.18
Oct	103.58	107.93	114.06	126.98
Nov	104.08	108.68	113.81	129.27
Dec	104.50	109.55	114.54	130.10
Jan	104.61	109.79	114.89	133.68
Feb	105.74	109.94	116.53	133.07
Mar	106.78	109.96	118.97	
Apr	106.65	110.12	119.05	
May	106.29	111.02	120.19	
Jun	106.28	111.99	120.86	

Table A23: National CPI Monthly & Average Seasonal Factors					
Period	FY17	FY18	FY19	FY20	Average
Jul	100.29	100.30	100.29	100.28	100.29
Aug	100.35	100.33	100.31	100.29	100.32
Sep	100.40	100.36	100.31	100.27	100.34
Oct	100.85	100.83	100.82	100.81	100.83
Nov	100.82	100.82	100.83	100.84	100.83
Dec	99.81	99.83	99.85	99.85	99.83
Jan	99.77	99.76	99.75	99.74	99.76
Feb	99.18	99.19	99.21	99.23	99.20
Mar	99.29	99.29	99.30		99.29
Apr	99.98	99.99	100.01		99.99
May	99.62	99.65	99.66		99.64
Jun	99.67	99.69	99.71		99.69

Table A24: Urban CPI Monthly & Average Seasonal Factors					
Period	FY17	FY18	FY19	FY20	Average
Jul	100.43	100.44	100.44	100.43	100.43
Aug	100.43	100.41	100.40	100.38	100.41
Sep	100.38	100.33	100.29	100.26	100.34
Oct	100.71	100.70	100.68	100.68	100.70
Nov	100.66	100.66	100.67	100.68	100.67
Dec	99.62	99.65	99.66	99.66	99.63
Jan	99.73	99.72	99.70	99.70	99.72
Feb	99.15	99.16	99.17	99.19	99.16
Mar	99.25	99.25	99.26		99.25
Apr	100.07	100.08	100.10		100.08
May	99.80	99.83	99.84		99.81
Jun	99.80	99.81	99.83		99.81

Table A25: Rural CPI Monthly & Average Seasonal Factors					
Period	FY17	FY18	FY19	FY20	Average
Jul	100.08	100.08	100.07	100.05	100.07
Aug	100.23	100.20	100.18	100.15	100.19
Sep	100.44	100.39	100.34	100.30	100.37
Oct	101.06	101.04	101.03	101.03	101.04
Nov	101.05	101.06	101.07	101.08	101.07
Dec	100.09	100.12	100.14	100.14	100.12
Jan	99.84	99.83	99.81	99.81	99.82
Feb	99.22	99.24	99.27	99.30	99.26
Mar	99.35	99.35	99.36		99.36
Apr	99.83	99.85	99.87		99.85
May	99.35	99.38	99.39		99.37
Jun	99.49	99.51	99.53		99.51

Table A26: National CPI (Month-on-Month) Original & Seasonally Adjusted				
Original Series				
Period	FY17	FY18	FY19	FY20
Jul	1.44	0.57	1.51	1.83
Aug	-0.36	0.15	-0.31	1.64
Sep	0.42	0.69	-0.03	0.77
Oct	0.93	1.09	2.12	1.81
Nov	0.47	0.66	-0.12	1.35
Dec	-0.58	-0.03	-0.30	-0.34
Jan	0.43	0.08	0.25	1.97
Feb	0.48	-0.26	0.87	-1.04
Mar	1.05	0.22	2.00	
Apr	0.72	1.08	0.73	
May	-0.52	0.46	0.60	
Jun	0.17	0.83	0.48	
Seasonally Adjusted Series				
Jul	0.80	-0.06	0.91	1.26
Aug	-0.42	0.12	-0.33	1.62
Sep	0.37	0.66	-0.03	0.78
Oct	0.48	0.61	1.61	1.27
Nov	0.51	0.68	-0.13	1.32
Dec	0.43	0.96	0.67	0.65
Jan	0.47	0.15	0.35	2.08
Feb	1.09	0.31	1.41	-0.53
Mar	0.94	0.12	1.90	
Apr	0.03	0.37	0.02	
May	-0.16	0.80	0.95	
Jun	0.12	0.79	0.43	

Table A27: Urban CPI (Month-on-Month) Original & Seasonally Adjusted Series				
Original Series				
Period	FY17	FY18	FY19	FY20
Jul	1.47	0.59	1.41	1.98
Aug	-0.46	0.20	-0.31	1.46
Sep	0.32	0.42	-0.08	0.75
Oct	0.79	0.89	2.23	1.59
Nov	0.47	0.63	-0.09	1.00
Dec	-0.59	0.05	-0.32	-0.37
Jan	0.82	0.18	0.43	1.68
Feb	0.51	-0.15	0.86	-1.09
Mar	1.01	0.28	1.87	
Apr	0.96	1.37	0.83	
May	-0.32	0.53	0.68	
Jun	0.21	0.72	0.34	
Seasonally Adjusted Series				
Jul	0.82	-0.06	0.78	1.38
Aug	-0.45	0.23	-0.28	1.50
Sep	0.37	0.50	0.03	0.87
Oct	0.45	0.52	1.83	1.17
Nov	0.52	0.66	-0.07	1.00
Dec	0.45	1.06	0.69	0.66
Jan	0.71	0.11	0.39	1.64
Feb	1.09	0.42	1.40	-0.59
Mar	0.90	0.19	1.78	
Apr	0.13	0.52	-0.01	
May	-0.05	0.79	0.94	
Jun	0.21	0.74	0.34	

Table A28: Rural CPI (Month-on-Month) Original & Seasonally Adjusted				
Original Series				
Period	FY17	FY18	FY19	FY20
Jul	1.39	0.54	1.67	1.60
Aug	-0.21	0.07	-0.30	1.91
Sep	0.57	1.10	0.04	0.79
Oct	1.15	1.40	1.96	2.17
Nov	0.48	0.72	-0.17	1.86
Dec	-0.56	-0.14	-0.29	-0.30
Jan	-0.14	-0.07	-0.02	2.41
Feb	0.45	-0.45	0.87	-0.97
Mar	1.12	0.13	2.19	
Apr	0.36	0.64	0.58	
May	-0.82	0.35	0.47	
Jun	0.12	1.01	0.70	
Seasonally Adjusted Series				
Jul	0.78	-0.06	1.10	1.07
Aug	-0.36	-0.06	-0.41	1.81
Sep	0.36	0.91	-0.11	0.65
Oct	0.53	0.75	1.27	1.44
Nov	0.49	0.70	-0.21	1.81
Dec	0.40	0.80	0.64	0.64
Jan	0.11	0.22	0.31	2.75
Feb	1.08	0.14	1.43	-0.46
Mar	0.99	0.02	2.09	
Apr	-0.12	0.14	0.06	
May	-0.34	0.82	0.96	
Jun	-0.01	0.87	0.56	

Figure A1: National CPI Non-food Inflation (YoY, 12MMA, MoM in percent)



Figure A2: Urban CPI Non-food Inflation (YoY, 12MMA, MoM in percent)

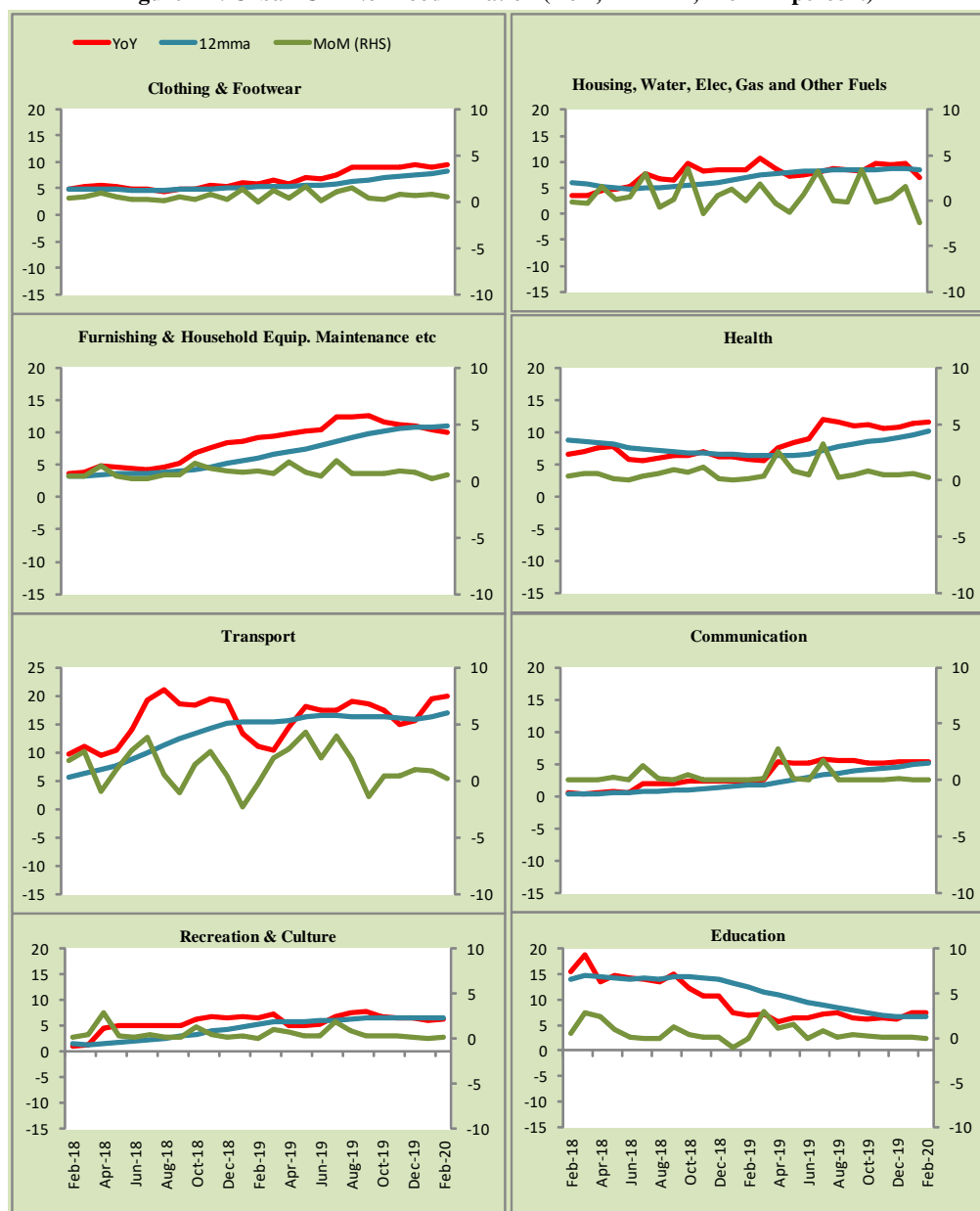


Figure A3: Rural CPI Non-food Inflation (YoY, 12MMA, MoM in percent)



Figure A4: Frequency Distribution of Price Changes of Urban CPI Items (YoY)

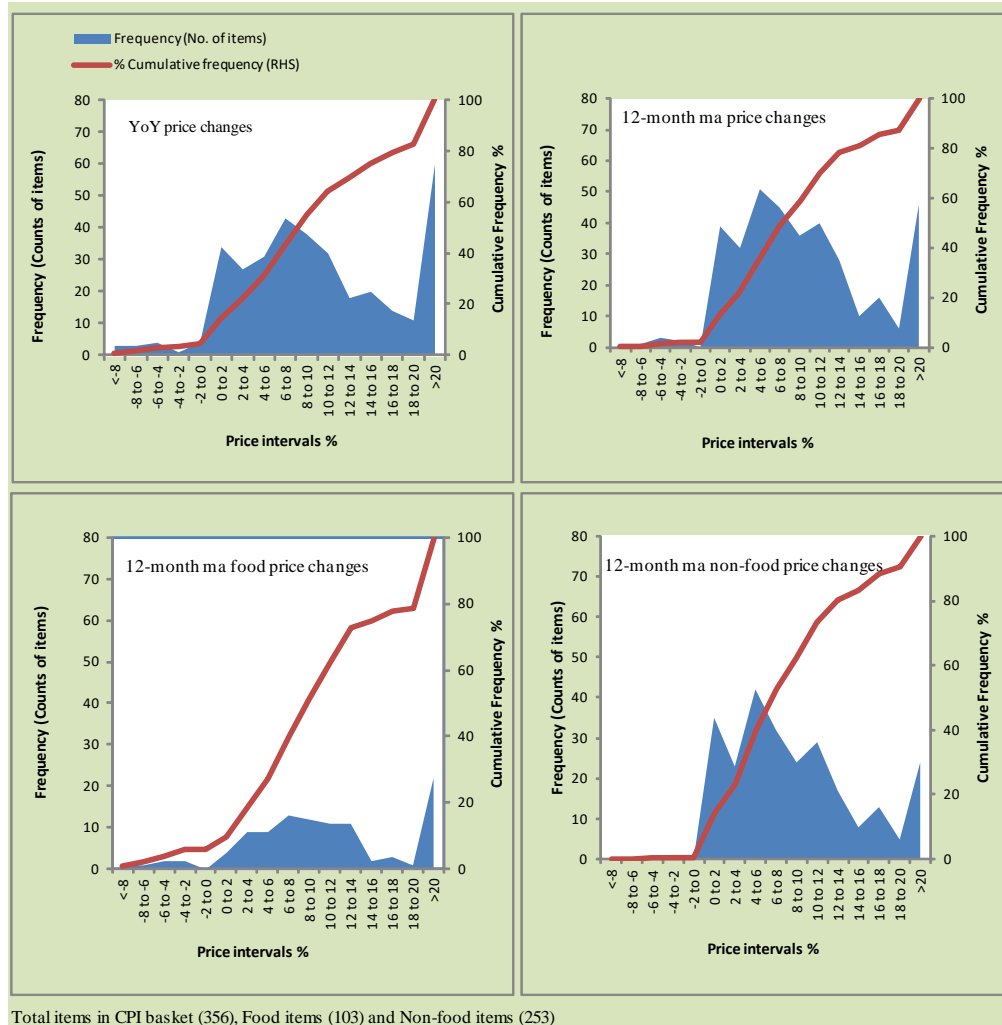
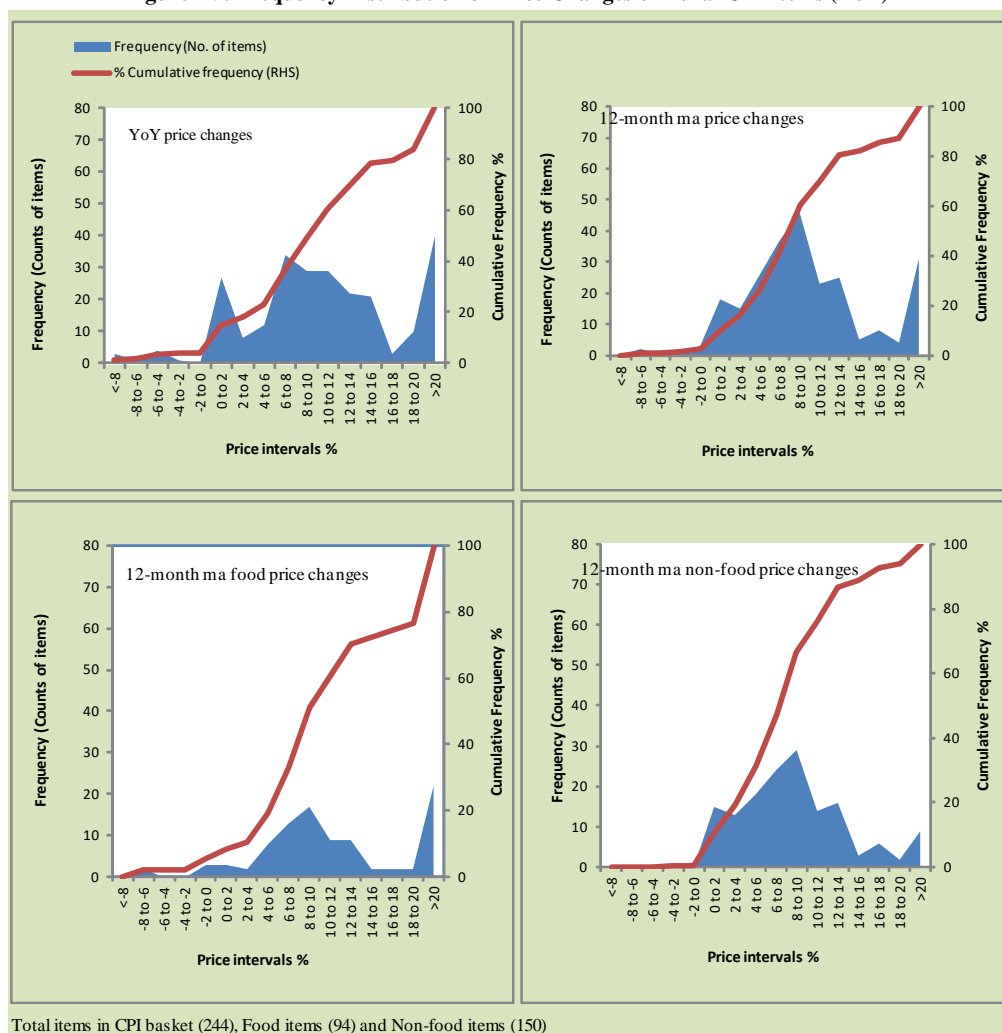


Figure A5: Frequency Distribution of Price Changes of Rural CPI Items (YoY)



Total items in CPI basket (244), Food items (94) and Non-food items (150)

Figure A6: Frequency Distribution of Price Changes of Urban CPI Items (MoM)

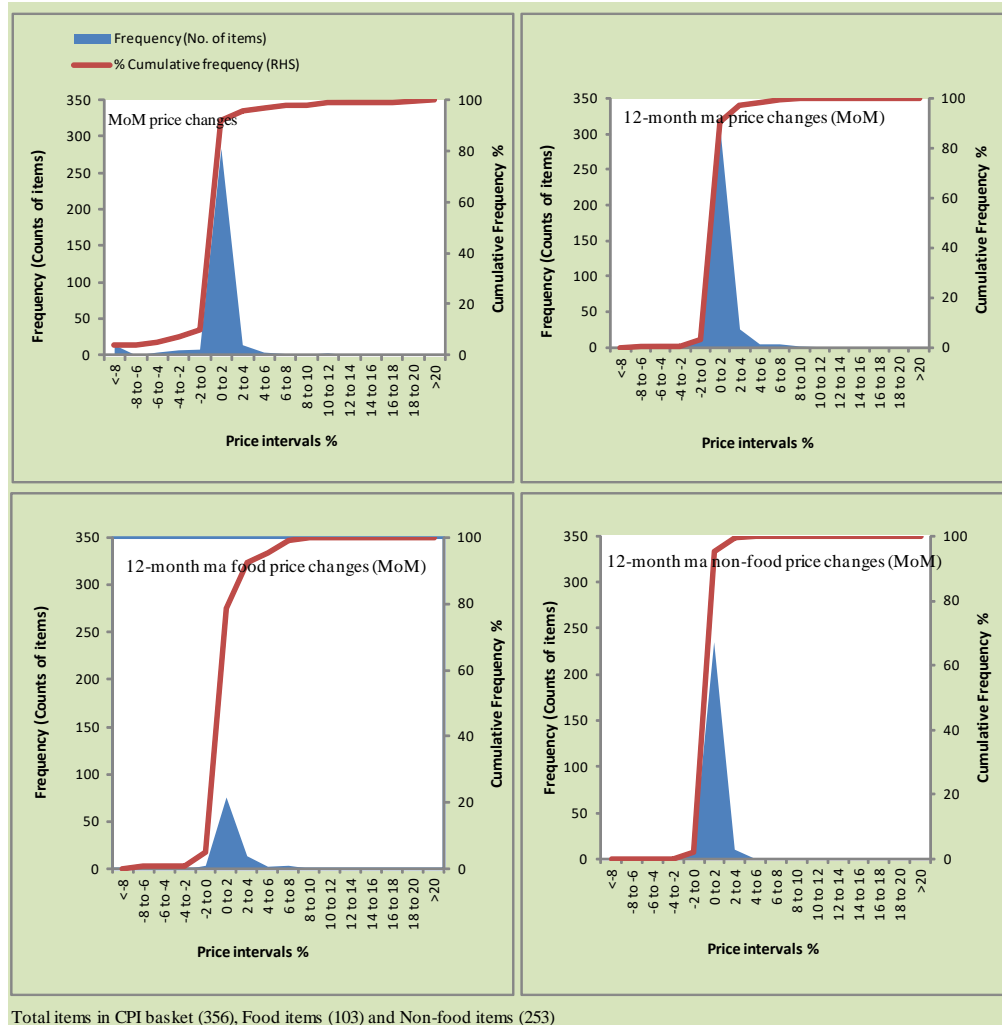


Figure A7: Frequency Distribution of Price Changes of Rural CPI Items (MoM)

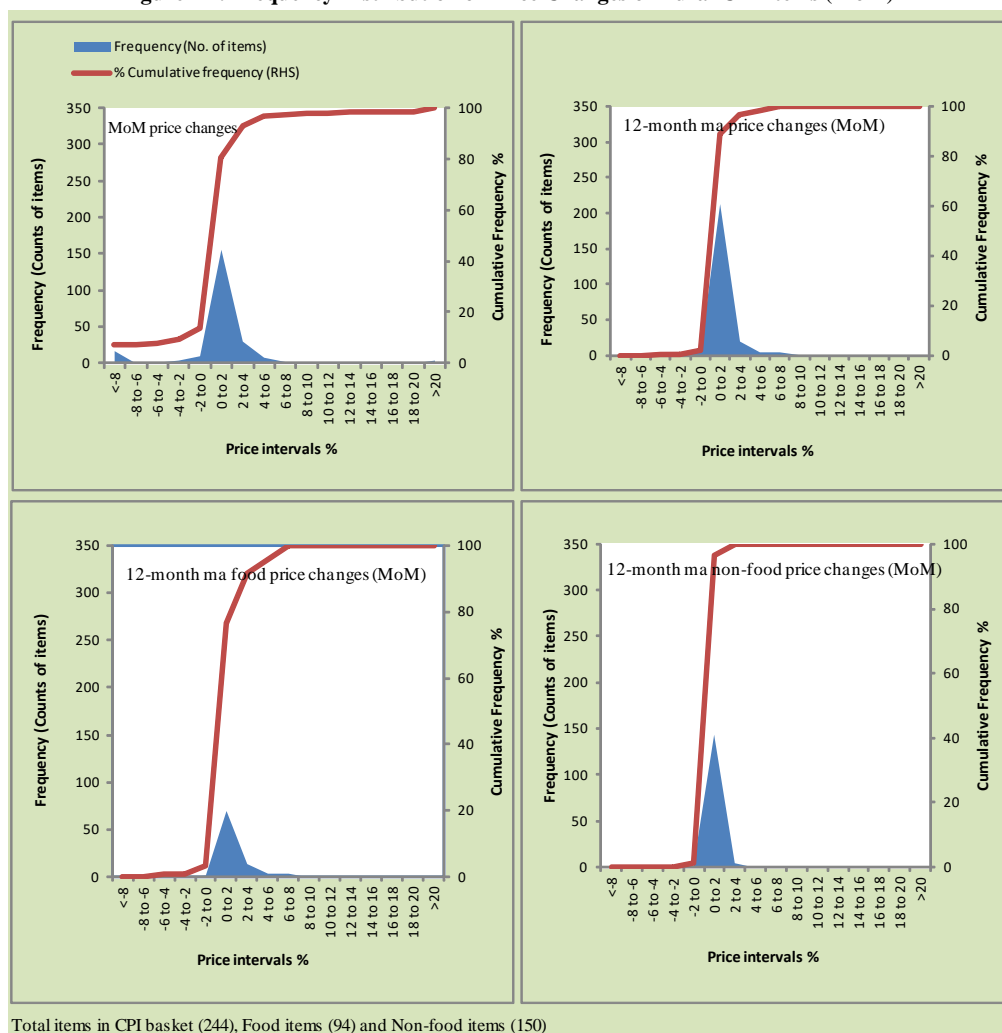
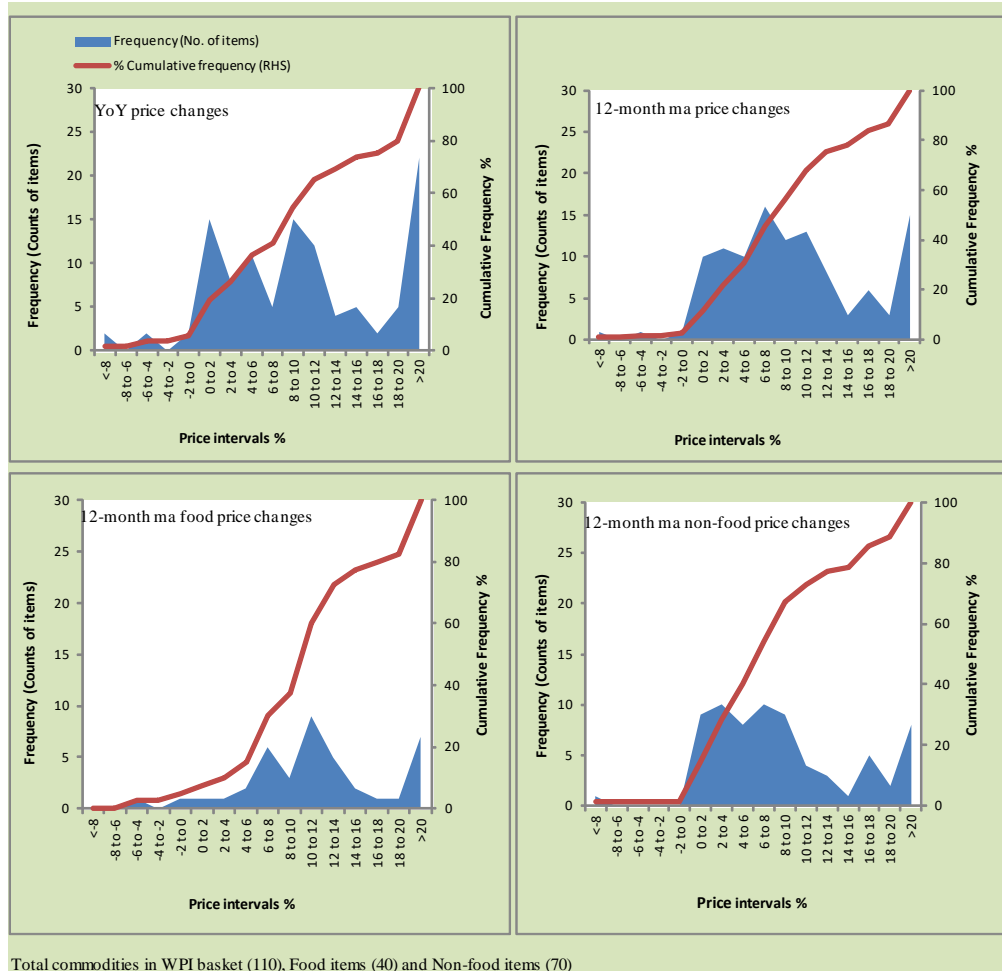


Figure A8: Frequency Distribution of Price Changes of WPI Commodities (YoY)



Annexure B

Technical Notes, Definitions and Methodologies

a) 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

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

b) Methodology for Estimating Inflation Diffusion Index for Pakistan

We constructed an index to measure the spread of inflation in the 487 items of the CPI basket. It is based on month-on-month (MoM) change in the prices of these items and can be obtained by estimating what is known as an ‘inflation diffusion index’ (IDI) as below:

$$IDI = \frac{\text{No. of items with postive MoM change in price} - \text{No. of items with negative MoM change in price}}{\text{No. of items for which prices are reported}} * 100$$

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 items for which prices have altered or remained constant¹.

Based upon item level prices 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 items (like the seasonal items) during certain periods of time. To calculate the inflation diffusion index we consider the items 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.