

Inflation Monitor

May 2020

(New Base: 2015-16)



State Bank of Pakistan

Statistics & DWH Department

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Review

1. Inflation in Brief

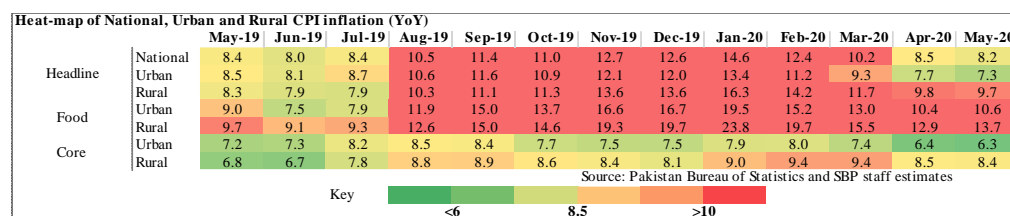
- a) National CPI inflation (2015-16=100) is recorded at 8.2 percent on year-on-year basis in May 2020 as compared to 8.5 percent in the previous month and 8.4 percent during the corresponding month of last year.
- b) National CPI inflation on month-on-month basis is recorded at 0.3 percent in May 2020 as compared to -0.8 percent in the previous month and 0.6 percent during the corresponding month of last year. Seasonally adjusted month-on-month CPI inflation is recorded at 0.77 percent in May 2020 compared to -1.24 percent in the previous month.
- c) Urban CPI inflation (2015-16=100) is recorded at 7.3 percent on year-on-year basis in May 2020 as compared to 7.7 percent in the previous month and 8.5 percent during the corresponding month of last year.
- d) Urban CPI inflation on month-on-month basis is recorded at 0.3 percent in May 2020 as compared to -0.7 percent in the previous month and 0.7 percent during the corresponding month of last year. Seasonally adjusted month-on-month Urban CPI inflation is recorded at 0.65 percent in May 2020 compared to -1.23 percent in the previous month.
- e) Rural CPI inflation (2015-16=100) is recorded at 9.7 percent on year-on-year basis in May 2020 as compared to 9.8 percent during the previous month. It was 8.3 percent during the corresponding month of last year.
- f) Rural CPI inflation on month-on-month basis is recorded at 0.3 percent in May 2020 as compared to -1.1 percent in the previous month and 0.5 percent during the corresponding month of last year. Seasonally adjusted month-on-month Rural CPI inflation is recorded at 0.94 percent in May 2020 compared to -1.25 percent in the previous month.

- g) Urban Core inflation (trimmed) on year-on-year basis is recorded at 6.7 percent in May 2020 and was at same level as compared to previous month and 7.3 percent during the corresponding month of last year.
- h) On month-on-month basis, the Urban Core inflation (trimmed) is recorded at 0.4 percent in May 2020 as compared to -0.2 percent in the previous month and 0.5 percent during the corresponding month of last year.
- i) Rural Core inflation (trimmed) on year-on-year basis is recorded at 8.9 percent in May 2020 as compared to 9.3 percent in the previous month and 7.2 percent during the corresponding month of last year.
- j) On month-on-month basis, the Rural Core inflation (trimmed) is recorded at 0.5 percent in May 2020 as compared to -0.6 percent in the previous month and was at same level during corresponding month of last year.
- k) Urban Core (Non-food, non-energy (NFNE)) inflation on year-on-year basis is recorded at 6.3 percent in May 2020 as compared to 6.4 percent in the previous month. It was 7.2 percent during the corresponding month of last year.
- l) Urban Core (NFNE) inflation on month-on-month basis recorded at 0.4 percent in May 2020 as compared to 0.2 percent in the previous month and 0.5 percent during the corresponding month of last year.
- m) Rural Core (NFNE) inflation on year-on-year basis is recorded at 8.4 percent in May 2020 as compared to 8.5 percent in the previous month and 6.8 percent during the corresponding month of last year.
- n) Rural Core (NFNE) inflation on month-on-month basis recorded at 0.4 percent in May 2020 as compared to 0.3 percent in the previous month and was at same level during the corresponding month of last year.

- o) WPI inflation on year-on-year basis recorded at 1.5 percent in May 2020 as compared to 4.9 percent in the previous month and 16.5 percent during the corresponding month of last year.
- p) WPI inflation on month-on-month basis recorded at -2.1 percent in May 2020 as compared to -2.0 percent in the previous month. It was 1.2 percent in the corresponding month of last year.
- q) SPI inflation on year-on-year basis recorded at 9.6 percent in May 2020 as compared to 8.5 percent in the previous month. It was 11.0 percent in the corresponding month of last year.
- r) SPI inflation on month-on-month basis recorded at 1.7 percent in May 2020 as compared to -2.6 percent in the previous month. It was 0.7 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/MoM) 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 8.5 percent and 0.75 percent on YoY and MoM basis, respectively. Greener areas indicate 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.



Inflation Monitor, May 2020

Heat-map of National, Urban and Rural CPI inflation (MoM)

		May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20
Headline	National	0.6	0.5	1.8	1.6	0.8	1.8	1.3	-0.3	2.0	-1.0	0.0	-0.8	0.3
	Urban	0.7	0.3	2.0	1.5	0.7	1.6	1.0	-0.4	1.7	-1.1	0.1	-0.7	0.3
	Rural	0.5	0.7	1.6	1.9	0.8	2.2	1.9	-0.3	2.4	-1.0	-0.1	-1.1	0.3
Food	Urban	1.3	-0.3	1.0	3.1	2.0	1.4	2.4	-1.7	2.7	-1.4	0.6	-1.0	1.5
	Rural	0.6	0.7	1.7	2.9	1.8	2.6	3.4	-1.1	3.4	-1.6	-0.3	-1.7	1.4
Core	Urban	0.5	0.2	1.8	0.4	0.4	0.5	0.3	0.4	1.1	0.2	0.3	0.2	0.4
	Rural	0.4	0.3	2.0	1.0	0.3	0.7	0.5	0.3	1.0	0.5	0.6	0.3	0.4

Source: Pakistan Bureau of Statistics and SBP staff estimates

Key: <0.00 0.75 >1.50

Heat-map of National CPI inflation (YoY)

	Weights	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20
National	100.00	8.4	8.0	8.4	10.5	11.4	11.0	12.7	12.6	14.6	12.4	10.2	8.5	8.2
Food and non-alcoholic Beverages	34.58	9.9	8.4	8.3	12.6	15.8	15.0	19.4	19.7	23.7	18.4	14.7	11.7	12.2
Alcoholic Beverages, Tobacco	1.02	11.9	17.3	29.3	29.8	30.0	20.3	18.7	18.3	17.9	18.5	18.6	19.6	19.5
Clothing and footwear	8.60	6.9	6.4	7.5	8.9	8.9	9.3	9.4	9.7	9.6	10.1	11.0	10.2	10.3
Housing, water, Elec., Gas and other fuels	23.63	6.5	6.9	6.1	7.1	6.6	7.2	8.8	8.5	9.6	6.8	4.9	5.1	6.4
Furnishing and household equipment maintenance	4.10	9.1	9.3	11.0	11.6	11.7	11.3	10.8	10.4	10.1	10.0	10.1	9.0	8.7
Health	2.79	8.7	9.4	11.6	11.9	11.7	12.2	11.4	11.3	11.8	12.0	12.4	10.5	9.8
Transport	5.91	17.8	17.2	16.8	18.5	17.8	16.5	14.0	14.7	18.6	19.2	11.5	3.4	-7.5
Communication	2.21	4.0	4.1	4.3	4.3	4.3	4.0	4.0	4.0	3.9	3.9	3.9	1.7	1.6
Recreation and culture	1.59	5.5	5.5	7.1	7.7	7.8	7.4	6.8	6.8	6.5	6.6	5.9	5.1	4.9
Education	3.79	5.9	5.8	6.8	6.9	6.2	6.0	6.1	6.0	7.3	7.4	4.5	3.2	2.0
Restaurants and hotels	6.92	4.2	4.0	5.8	6.2	6.1	6.0	6.4	6.1	7.4	8.7	8.7	8.5	8.6
Misc. goods and services	4.87	8.6	9.4	10.8	13.2	13.4	12.5	11.8	10.7	11.4	11.4	11.8	11.9	11.9

Source: Pakistan Bureau of Statistics and SBP staff estimates

Key: <6 8.5 >10

Heat-map of Urban CPI inflation (YoY)

	Weights	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20
Urban	100.00	8.5	8.1	8.7	10.6	11.6	10.9	12.1	12.0	13.4	11.2	9.3	7.7	7.3
Food and non-alcoholic Beverages	30.42	9.7	7.7	7.7	12.6	16.3	15.0	18.6	18.8	22.0	16.4	13.7	10.7	10.9
Alcoholic Beverages, Tobacco	0.85	10.8	16.3	28.4	28.5	28.7	18.5	16.7	16.6	16.8	17.7	17.8	18.8	19.0
Clothing and footwear	8.01	7.0	6.8	7.5	9.1	9.0	9.0	9.1	9.6	9.0	9.6	9.9	9.5	9.5
Housing, water, Elec., Gas and other fuels	27.03	7.2	7.6	7.9	8.6	8.4	8.2	9.6	9.4	9.7	6.9	5.1	5.1	6.5
Furnishing and household equipment maintenance	4.09	10.2	10.5	12.3	12.4	12.5	11.6	11.2	11.0	10.4	10.0	9.8	8.3	7.7
Health	2.31	8.5	9.0	12.1	11.7	11.1	11.2	10.5	10.9	11.5	11.7	12.2	9.4	8.7
Transport	6.14	18.2	17.4	17.5	19.0	18.6	17.5	15.0	15.6	19.4	19.9	12.2	4.1	-6.5
Communication	2.35	5.2	5.2	5.7	5.5	5.6	5.2	5.1	5.3	5.3	5.3	5.1	2.3	2.2
Recreation and culture	1.73	5.1	5.3	6.8	7.5	7.7	6.7	6.5	6.4	6.1	6.1	5.6	4.9	4.6
Education	4.88	6.4	6.4	7.3	7.4	6.4	6.2	6.3	6.3	7.5	7.5	4.5	3.4	1.9
Restaurants and hotels	7.41	4.5	4.5	5.4	5.0	5.0	4.9	5.2	4.9	6.5	7.7	7.5	7.4	7.2
Misc. goods and services	4.77	8.8	9.7	10.8	12.6	13.1	12.0	11.0	10.1	10.7	10.1	10.6	11.0	10.9

Source: Pakistan Bureau of Statistics and SBP staff estimates

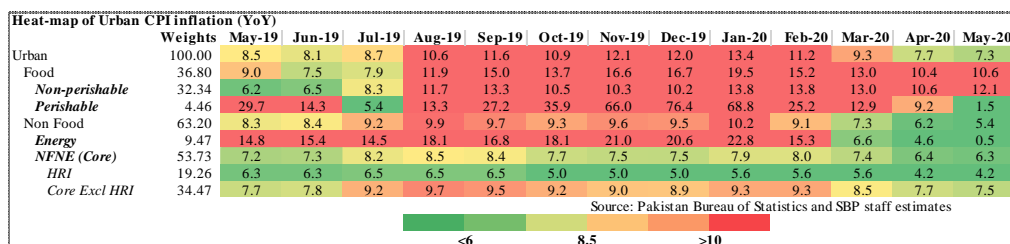
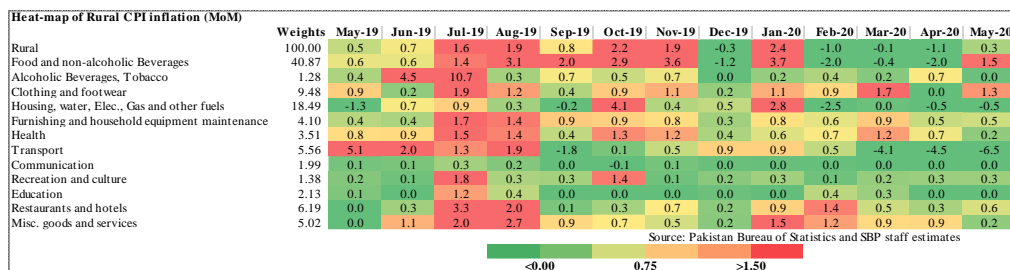
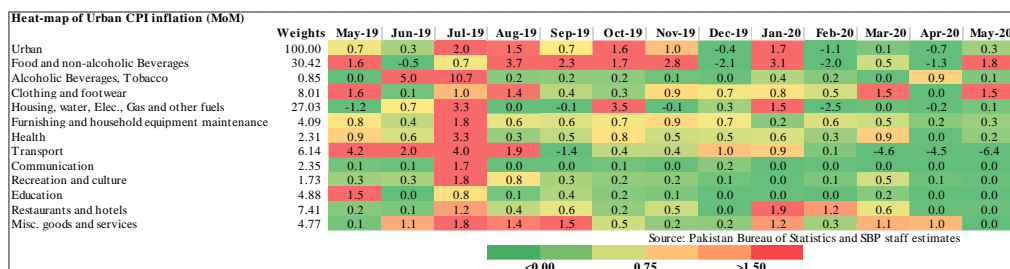
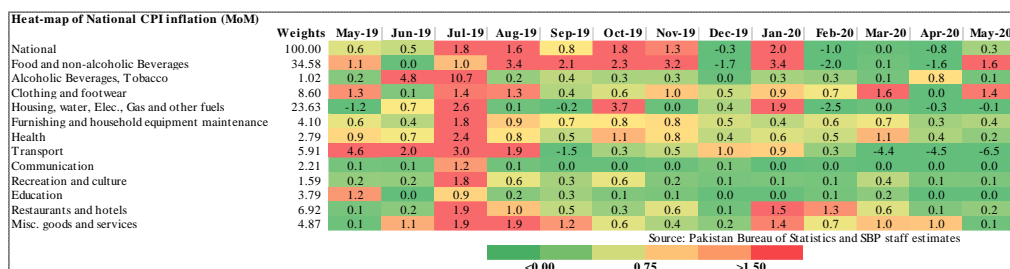
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Heat-map of Rural CPI inflation (YoY)

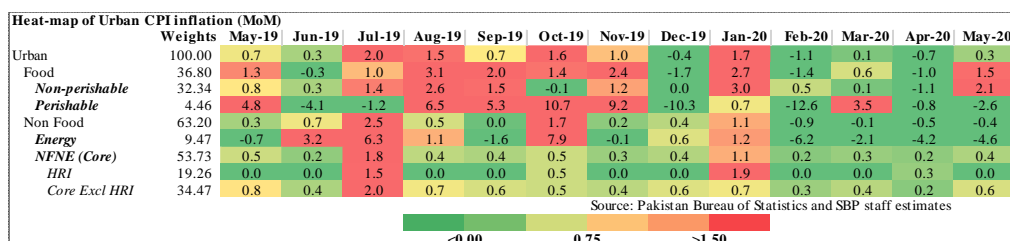
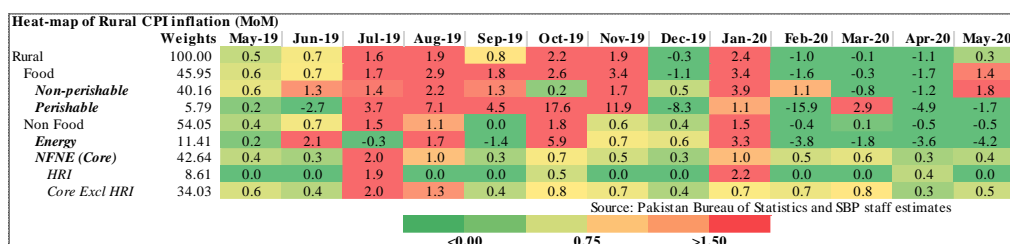
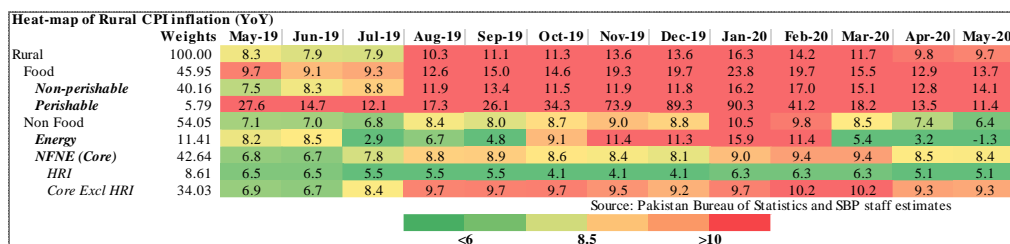
	Weights	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20
Rural	100.00	8.3	7.9	7.9	10.3	11.1	11.3	13.6	13.6	16.3	14.2	11.7	9.8	9.7
Food and non-alcoholic Beverages	40.87	10.1	9.3	8.9	12.6	15.3	15.1	20.3	20.8	25.5	20.6	15.8	12.8	13.7
Alcoholic Beverages, Tobacco	1.28	13.3	18.4	30.4	31.3	31.4	22.4	21.0	20.2	19.2	19.4	19.5	20.4	20.1
Clothing and footwear	9.48	6.9	6.0	7.5	8.7	8.9	9.7	9.8	9.9	10.2	10.8	12.3	11.0	11.4
Housing, water, Elec., Gas and other fuels	18.49	5.0	5.3	2.0	3.7	2.8	4.9	6.9	6.6	9.4	6.6	4.6	5.2	6.0
Furnishing and household equipment maintenance	4.10	7.4	7.6	9.1	10.2	10.5	10.9	10.2	9.6	9.7	9.9	10.6	10.1	10.2
Health	3.51	8.9	9.8	11.1	12.2	12.2	13.1	12.3	11.7	12.1	12.4	12.6	11.6	10.9
Transport	5.56	17.2	16.9	15.7	17.6	16.4	14.7	12.2	13.1	17.2	18.0	10.2	2.3	-9.0
Communication	1.99	2.1	2.1	2.0	2.1	2.0	2.0	1.9	1.7	1.7	1.6	1.6	0.8	0.7
Recreation and culture	1.38	6.4	5.9	7.7	8.0	8.0	8.9	7.4	7.5	7.3	7.3	6.5	5.4	5.5
Education	2.13	3.9	3.6	4.9	5.3	5.3	5.3	5.3	5.0	6.7	7.1	4.5	2.5	2.4
Restaurants and hotels	6.19	3.6	2.9	6.4	8.1	8.1	8.0	8.5	8.3	8.9	10.3	10.8	10.4	11.1
Misc. goods and services	5.02	8.3	9.0	10.7	14.1	13.9	13.2	12.9	11.6	12.5	13.4	13.6	13.2	13.5

Source: Pakistan Bureau of Statistics and SBP staff estimates

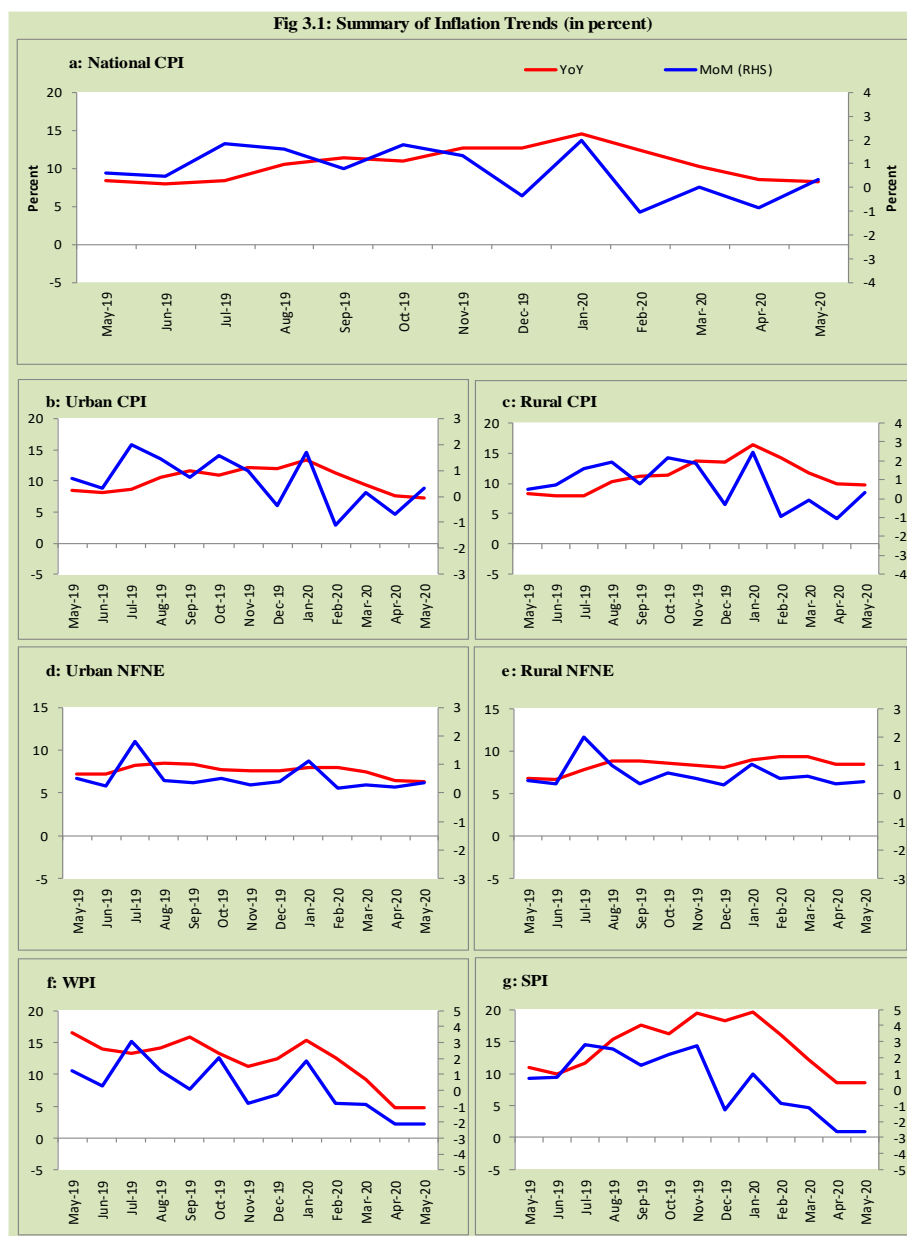
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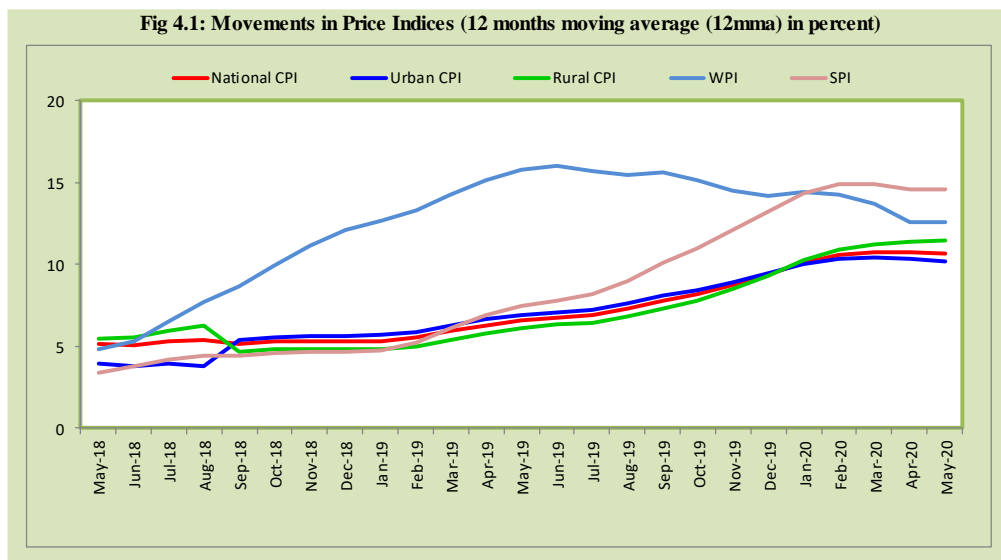
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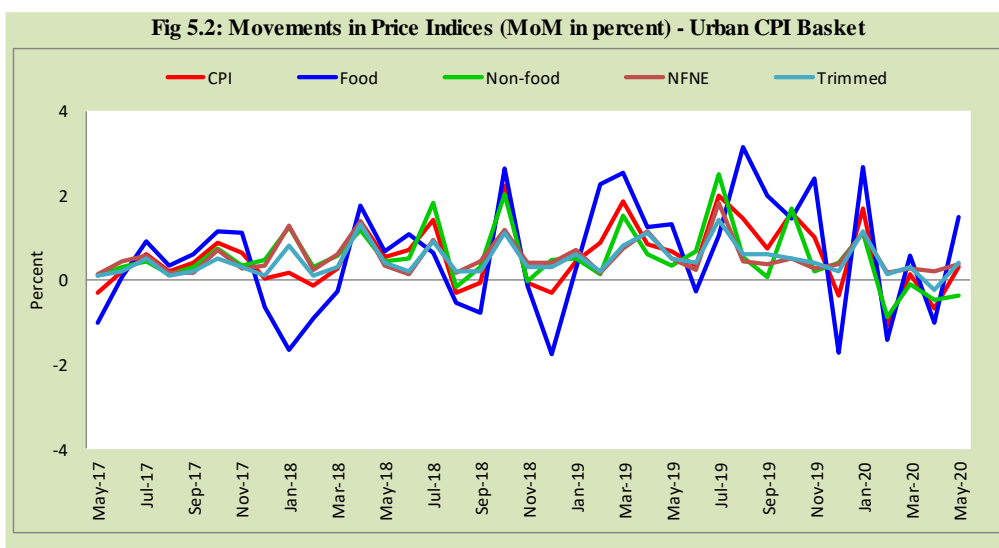
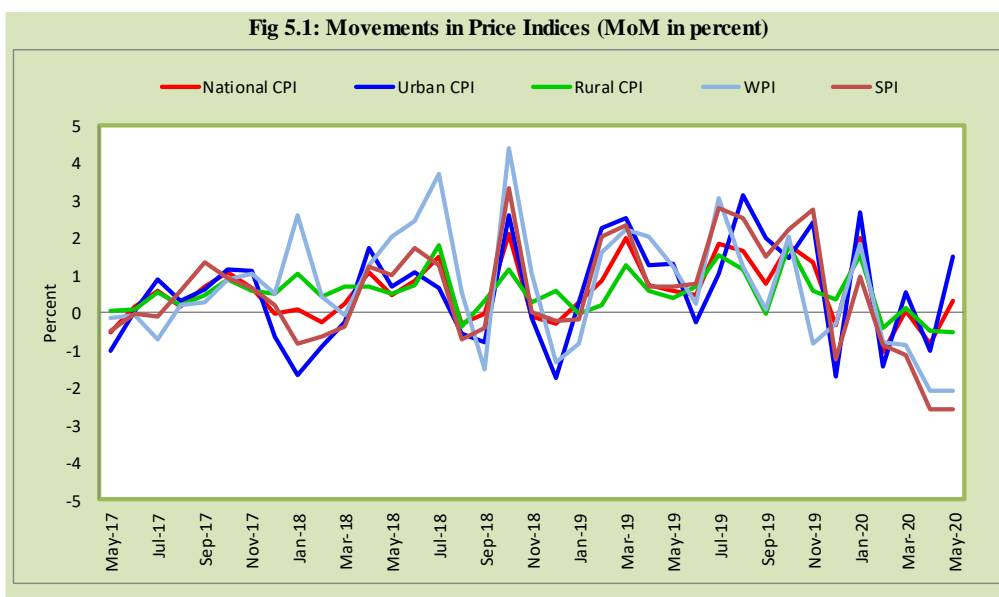
3. Trends in Inflation

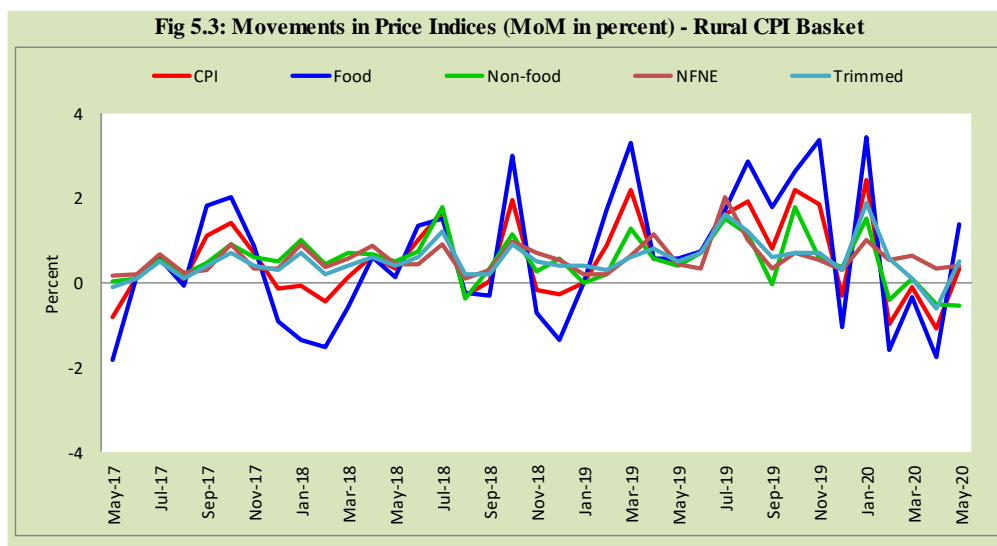


4. Movement in Price Indices (Moving Averages)



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

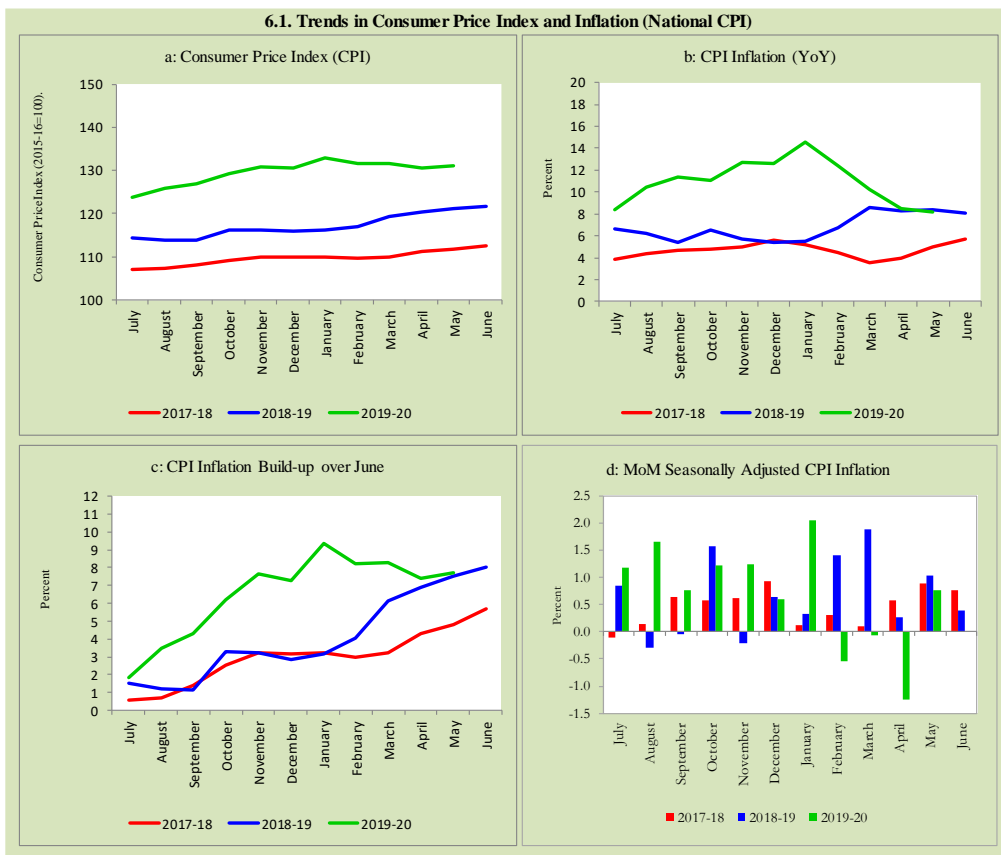




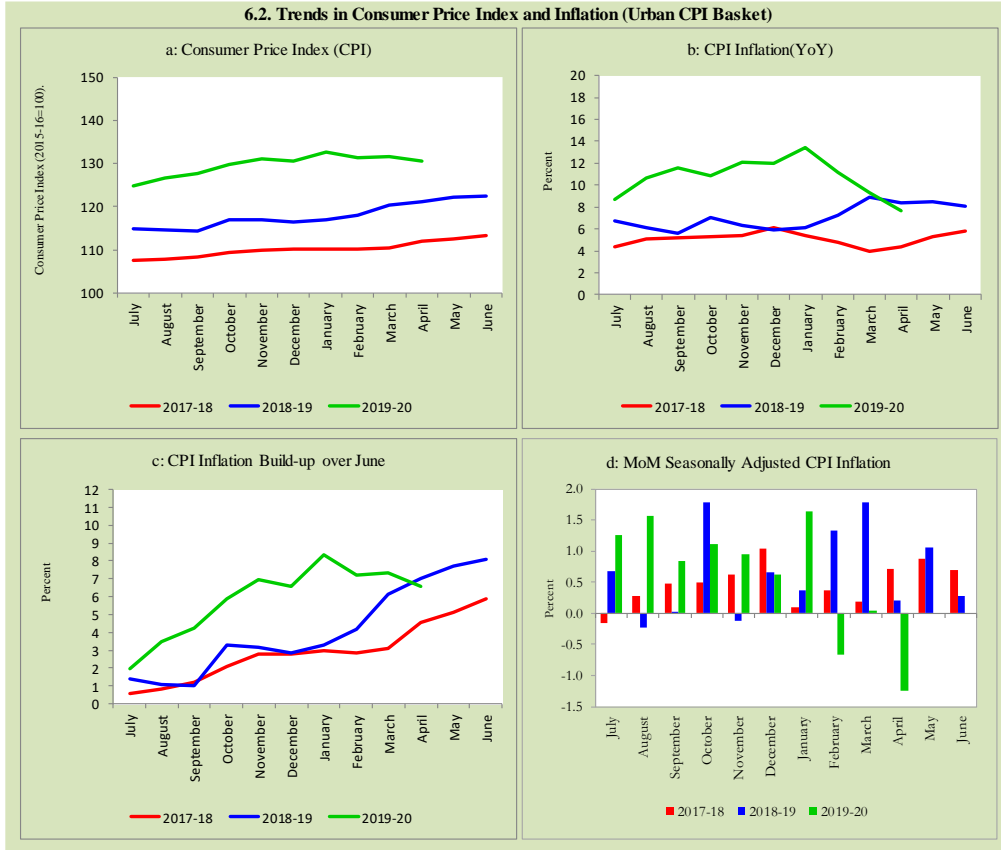
6. Trends in Consumer Price Indices and Inflation

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).

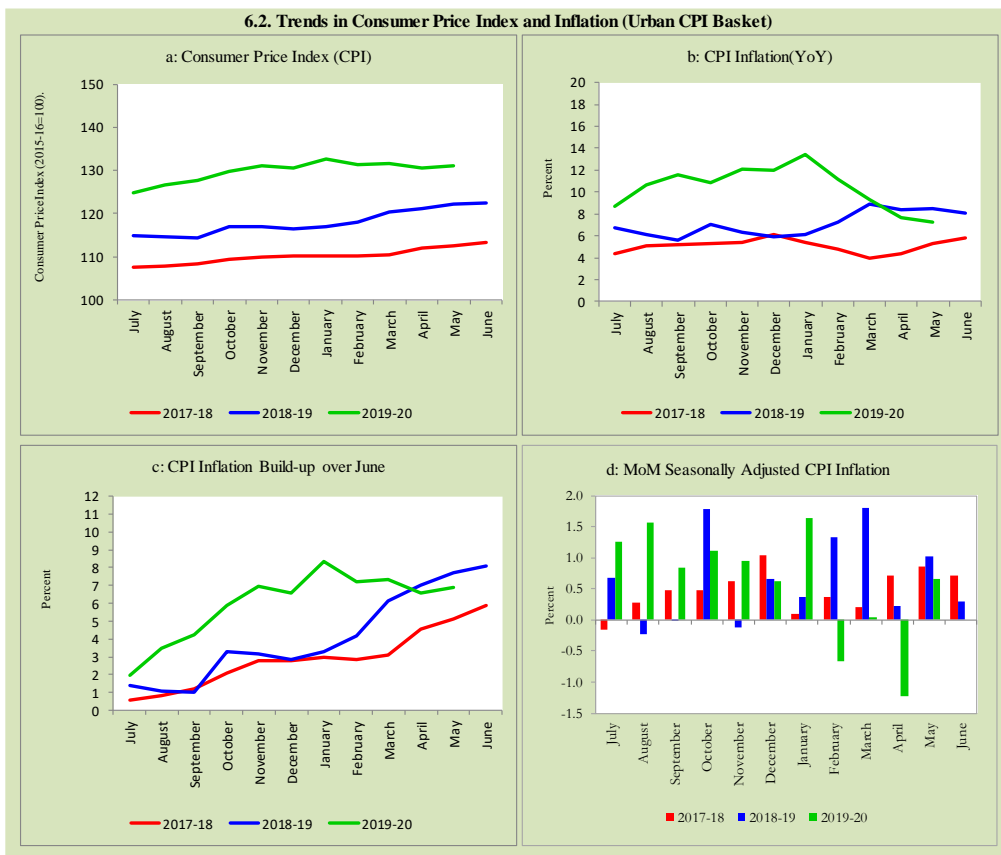
6.1. Trends in Consumer Price Index and Inflation (National CPI)

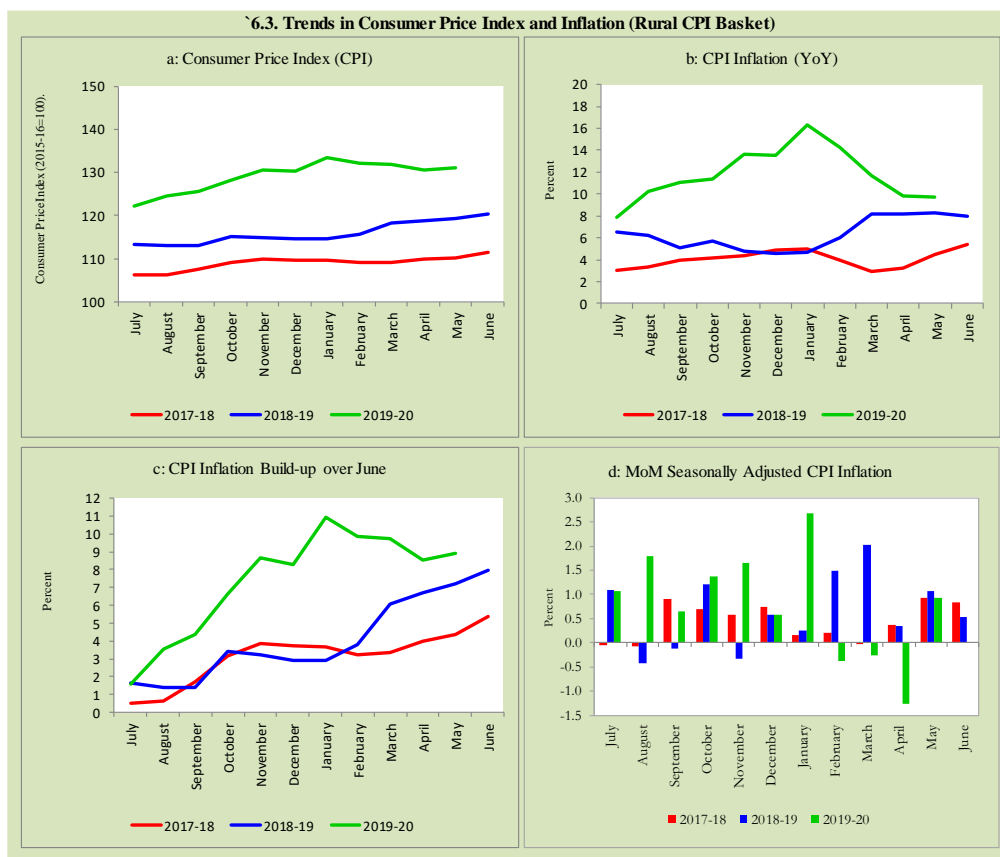


6.2. Trends in Consumer Price Index and Inflation (Urban CPI Basket)



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 increased to 52.2 percent during May 2020 from 48.3 percent in previous month. It was 37.6 percent during corresponding month of last year. The weighted contribution of non-food group decreased to 47.8 percent in May 2020 from 51.7 percent in previous month. Non-food group was 62.4 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

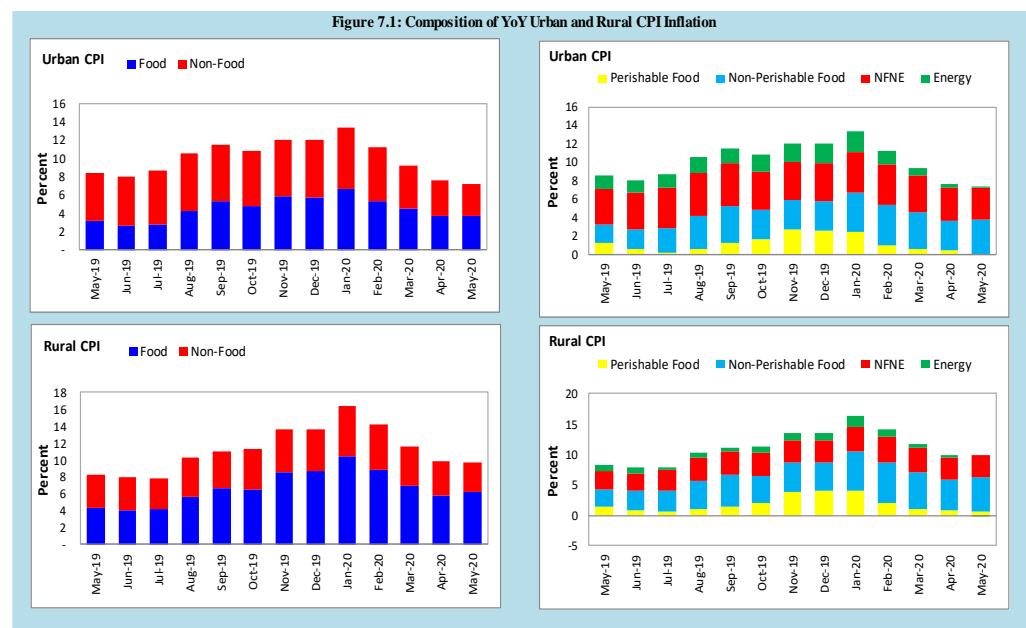
the overall inflation for urban basket. Figure 7.1 provides a graphical presentation of composition of YoY urban CPI inflation cascaded in food group and non-food groups and their respective sub-indexes.

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	i
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
Mar-20	100	49.4	6.5	42.8	50.7	7.2	43.4	31.5	11.9
Apr-20	100	48.3	5.8	42.5	51.7	5.9	45.8	35.0	10.8
May-20	100	52.2	1.0	51.1	47.8	0.7	47.1	35.8	11.4

Also, for rural basket, the weighted contribution of food group in the overall rural CPI inflation increased to 63.8 percent during May 2020 from 58.8 percent in previous month. It was 52.4 percent during corresponding month of last year. On the other hand, the weighted contribution of non-food group decreased to 36.2 percent in May 2020 from 41.2 percent in previous month. Non-food group was 47.6 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.

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
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
Mar-20	100	59.9	9.5	50.4	40.2	5.5	34.7	29.9	4.8
Apr-20	100	58.8	8.2	50.6	41.2	3.8	37.5	32.8	4.7
May-20	100	63.8	7.0	56.9	36.2	-1.6	37.8	33.0	4.7

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

	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20
General	39.3	52.5	61.5	65.2	52.8	61.8	55.3	43.5	56.2	52.5	45.8	19.9	30.1
Food & Non-Alcoholic Beverages	47.8	43.3	50.0	65.6	50.0	67.8	45.6	35.6	66.7	35.6	31.1	26.7	4.4
Alcoholic Beverages & Tobacco	0.0	100.0	100.0	66.7	100.0	100.0	100.0	66.7	100.0	66.7	66.7	100.0	66.7
Clothing & Footwear	40.0	60.0	70.0	80.0	57.5	72.5	80.0	72.5	75.0	75.0	67.5	10.0	67.5
Housing, Water, Elect, Gas & other Fuels	3.4	65.5	44.8	37.9	10.3	55.2	24.1	20.7	3.4	6.9	27.6	24.1	17.2
Furnishing & Household Equip. Maintenance etc.	54.8	90.5	76.2	88.1	97.6	88.1	95.2	76.2	71.4	92.9	64.3	19.0	61.9
Health	50.0	75.0	0.0	100.0	0.0	100.0	50.0	25.0	75.0	75.0	100.0	-25.0	0.0
Transport	50.0	75.0	0.0	100.0	0.0	100.0	50.0	25.0	75.0	75.0	100.0	-25.0	0.0
Communication	20.0	20.0	40.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	0.0	20.0
Recreation & Culture	44.0	36.0	56.0	60.0	32.0	24.0	32.0	20.0	20.0	28.0	20.0	12.0	20.0
Education	56.3	0.0	56.3	56.3	62.5	6.3	25.0	12.5	6.3	0.0	31.3	0.0	0.0
Restaurant & Hotels	35.7	50.0	78.6	85.7	78.6	78.6	71.4	28.6	71.4	85.7	64.3	14.3	57.1
Miscellaneous	48.3	82.8	69.0	79.3	96.6	79.3	65.5	34.5	82.8	75.9	69.0	37.9	41.4
NFNE	40.4	55.7	68.1	68.1	59.1	58.3	63.0	48.1	55.3	62.6	53.2	19.6	40.4

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

	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20
General	41.4	46.7	73.0	60.7	34.4	64.3	50.8	36.9	56.6	48.0	41.8	23.4	32.4
Food & Non-Alcoholic Beverages	30.4	36.7	65.8	55.7	22.8	69.6	46.8	25.3	67.1	32.9	16.5	25.3	8.9
Alcoholic Beverages & Tobacco	20.0	100.0	100.0	100.0	80.0	100.0	80.0	0.0	60.0	100.0	60.0	60.0	20.0
Clothing & Footwear	77.8	63.0	85.2	81.5	66.7	77.8	59.3	48.1	77.8	85.2	70.4	0.0	85.2
Housing, Water, Elect, Gas & other Fuels	-4.3	60.9	39.1	52.2	-4.3	82.6	34.8	39.1	8.7	0.0	39.1	34.8	17.4
Furnishing & Household Equip. Maintenance etc.	65.4	42.3	84.6	88.5	73.1	84.6	80.8	57.7	69.2	73.1	80.8	23.1	53.8
Health	64.3	57.1	78.6	57.1	35.7	50.0	78.6	57.1	42.9	42.9	71.4	42.9	50.0
Transport	56.3	56.3	75.0	50.0	12.5	37.5	43.8	25.0	43.8	43.8	12.5	-6.3	0.0
Communication	40.0	20.0	40.0	20.0	0.0	-20.0	20.0	20.0	20.0	20.0	0.0	0.0	0.0
Recreation & Culture	27.8	11.1	72.2	11.1	22.2	27.8	11.1	27.8	22.2	33.3	27.8	22.2	11.1
Education	60.0	0.0	80.0	20.0	0.0	0.0	0.0	20.0	0.0	80.0	40.0	0.0	0.0
Restaurant & Hotels	21.4	35.7	85.7	57.1	21.4	42.9	42.9	35.7	78.6	71.4	78.6	28.6	64.3
Miscellaneous	64.7	76.5	100.0	88.2	70.6	70.6	64.7	58.8	70.6	82.4	52.9	41.2	70.6
NFNE	55.9	47.8	81.6	63.2	49.3	58.1	55.1	44.9	52.2	58.1	55.9	24.3	50.0

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

9. Domestic Commodity Prices

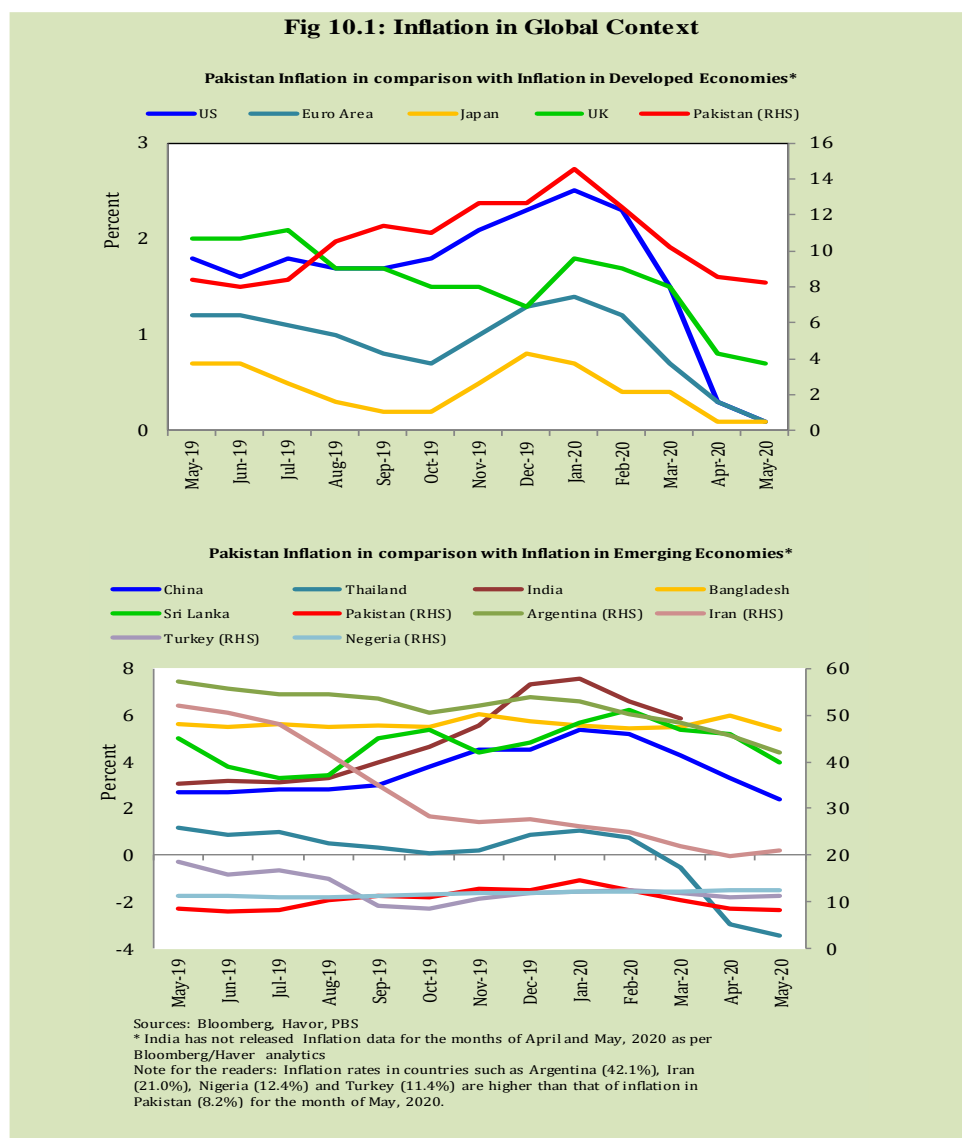
Inflation in domestic food commodities (YoY and MoM in percent) for selected essential food items covering both urban and rural CPI baskets is given in table 9.1.

Table 9.1 Inflation in Domestic Urban and Rural CPI Food Commodities (in percent) - May 2020						
S. No	Item	Unit	Urban CPI		Rural CPI	
			YoY	MoM	YoY	MoM
1	Wheat	10 Kg	11.7	-3.4	13.9	-7.6
2	Wheat Flour Bag	20 Kg	10.9	-0.1	11.9	-2.8
3	Rice Basmati Broken (Superior/Average Quality)*	1 Kg	8.6	0.0	8.7	0.7
4	Beef with Bone (Average Quality)	1 Kg	13.5	0.9	9.5	1.2
5	Mutton (Average Quality)	1 Kg	8.3	1.0	10.3	0.3
6	Chicken Farm Broiler (Live)	1 Kg	4.9	41.5	5.0	41.1
7	Milk Fresh (Un-Boiled)	1 Litre	7.9	5.1	5.7	4.2
8	Eggs Farm	Dozen	19.6	-18.7	17.5	-13.8
9	Vegetable Ghee Dalda/Habib Or Other Superior Quality 1 Kg Pouch	Each	24.8	-0.4	28.3	-0.2
10	Pulse Masoor (Washed)	1 Kg	40.8	-4.4	41.3	1.9
11	Pulse Moong (Washed)	1 Kg	83.2	-0.5	91.5	4.4
12	Pulse Mash (Washed)	1 Kg	56.7	0.0	49.3	2.1
13	Pulse Gram	1 Kg	20.2	-7.2	24.7	-2.4
14	Potatoes	1 Kg	100.9	32.1	128.8	42.1
15	Onions	1 Kg	-21.2	-23.4	-13.7	-21.8
16	Tomatoes	1 Kg	-39.5	-7.7	-45.5	-21.8
17	Sugar Refined	1 Kg	20.1	-0.3	22.5	-4.8
18	Garlic (Lehsun)	1 Kg	20.3	-11.4	19.3	-0.3
19	Ginger (Adrak)	500 Gm	28.6	-2.6	64.5	-1.4
20	Tea Lipton Yellow Label 190 Gm Packet	Each	9.5	0.0	9.7	0.0

*Superior Quality for Urban CPI Basket and Average Quality for Rural CPI Basket

10. Inflation in Global Context

In global context, Pakistan's inflation in comparison with inflation in selected developed and emerging economies is given in figure 10.1.



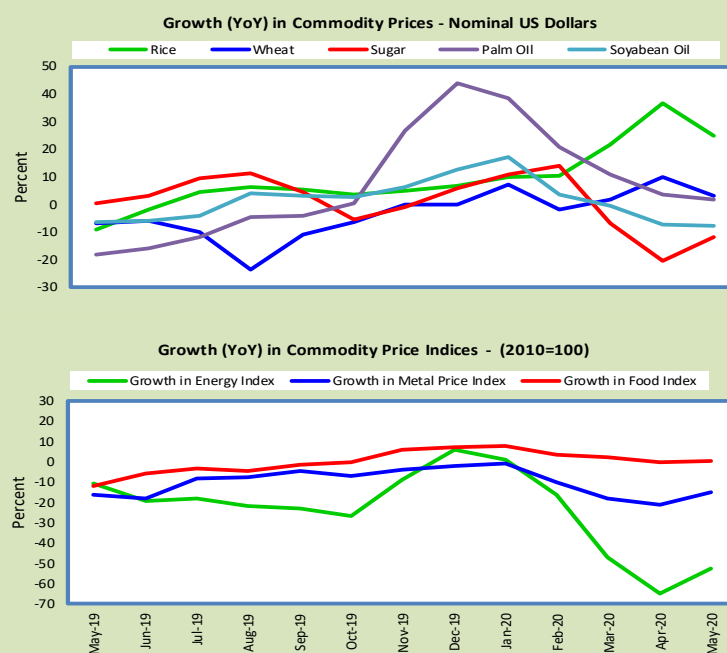
11. Global Commodity Prices

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	May-19		Apr-20		May-20	
	YoY	MoM	YoY	MoM	YoY	MoM
Food	-10.5	-0.3	-0.4	-2.7	0.5	-0.3
Metals	-10.9	-0.6	-21.4	-4.6	-14.9	2.4
Energy	-2.0	5.3	-65.1	-30.2	-52.6	32.2
Agricultural	-9.4	0.1	-1.8	-1.8	-0.8	-0.1
Cotton	-5.4	4.1	-42.5	-8.5	-25.3	1.0

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 May 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

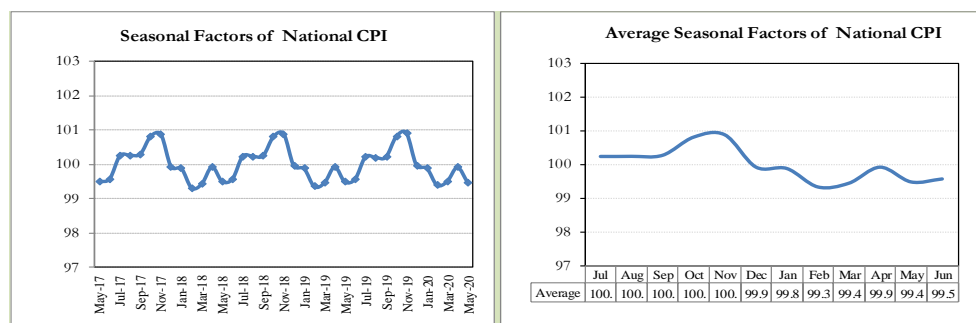


Fig. 12.1 (b) Seasonal Factors of Urban CPI

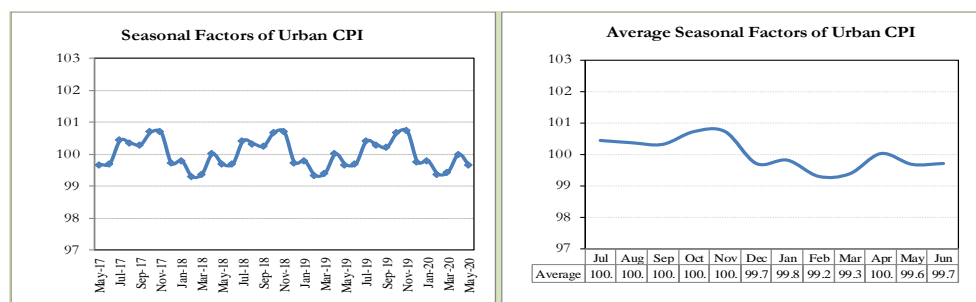
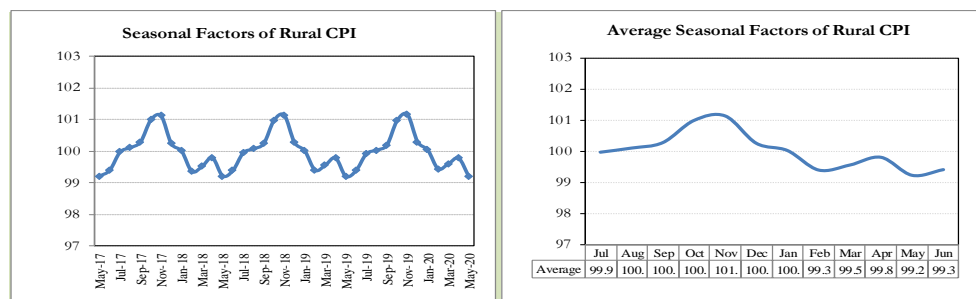


Fig. 12.1 (c) Seasonal Factors of Rural CPI



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

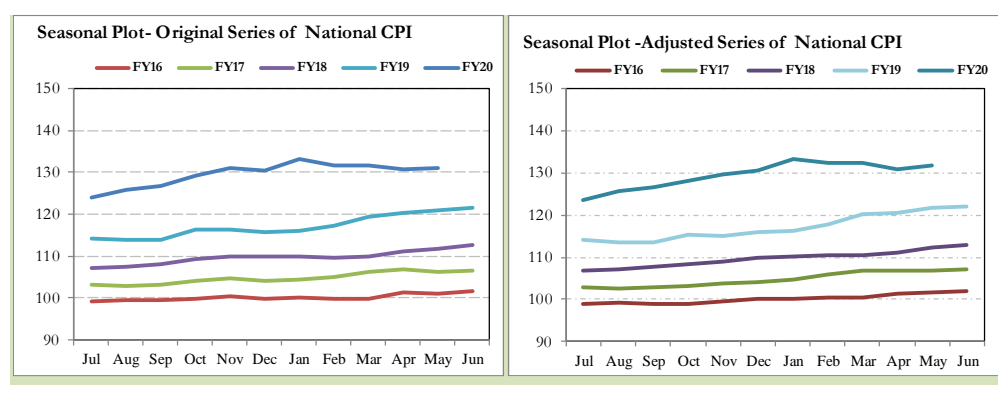


Fig. 12.2 (b) Seasonal Plots of Urban CPI

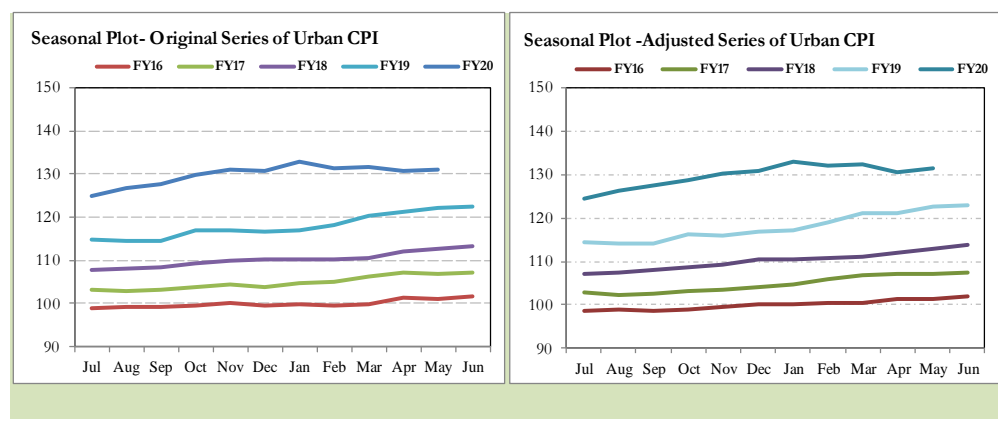
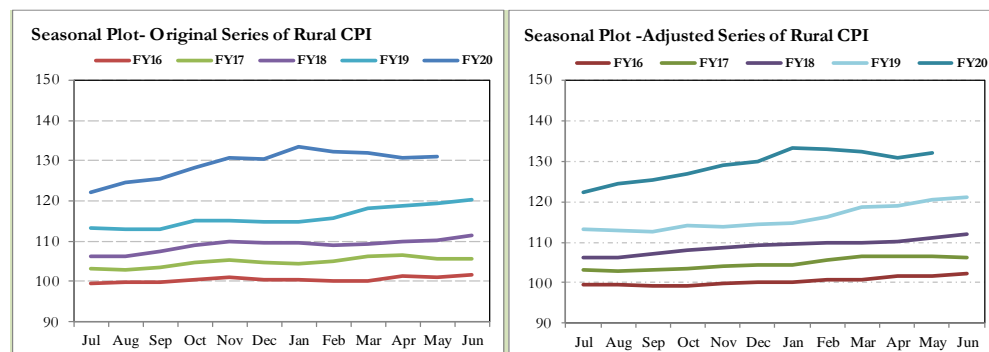


Fig. 12.2 (c) Seasonal Plots of Rural CPI



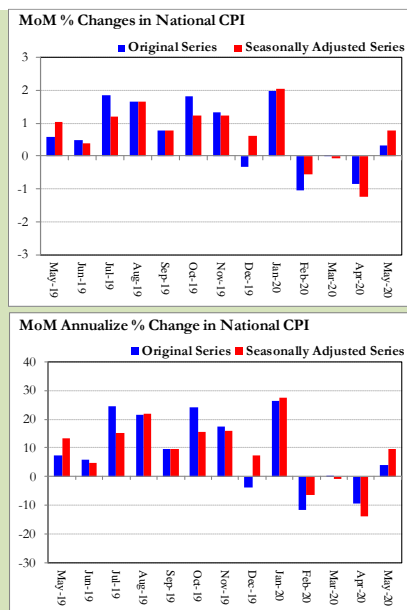
Seasonally adjusted National CPI for May 2020 stood at 131.71 against 131.01 in original series showing an increase of 0.70 on account of adjustment of downward seasonality in May 2020.

Seasonally adjusted Urban CPI for May 2020 stood at 131.45 against 130.99 in original series showing an increase of 0.46 on account of adjustment of downward seasonality in May 2020.

Seasonally adjusted Rural CPI for May 2020 stood at 132.09 against 131.03 in original series showing an increase of 1.06 on account of adjustment of downward seasonality in May 2020.

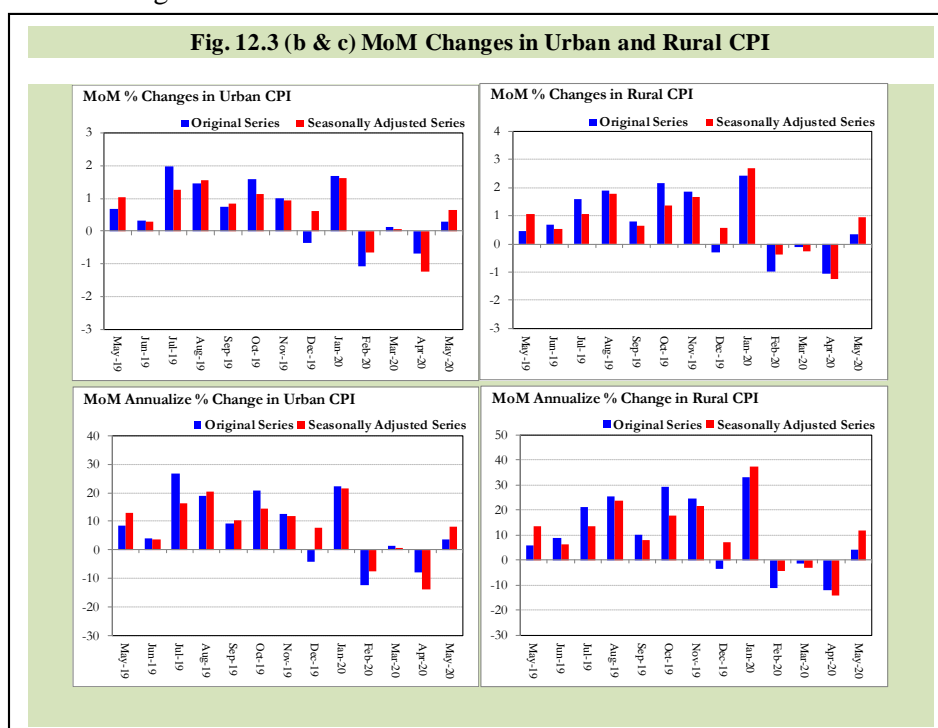
Month-on-month change of seasonally adjusted National CPI series stood at 0.77% reflecting an increase during May 2020 over previous month and an increase of 0.32% in original series.

Fig. 12.3 (a) MoM Changes in National CPI



Month-on-month change of seasonally adjusted Urban CPI series stood at 0.65% reflecting an increase during May 2020 over previous month and an increase of 0.30% in original series.

Month-on-month change of seasonally adjusted Rural CPI series stood at 0.94% reflecting an increase during May 2020 over previous month and an increase of 0.34% 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 May 2020 (corresponding to the seasonally adjusted month-on-month rate) is 9.60 percent.

Annexure A

	Weights	MoM change			YoY change		
		May-19	Apr-20	May-20	May-19	Apr-20	May-20
Food & Non-Alcoholic Beverages	34.6	1.1	-1.6	1.6	9.9	11.7	12.2
Alcoholic Beverages & Tobacco	1.0	0.2	0.8	0.1	11.9	19.6	19.5
Clothing & Footwear	8.6	1.3	0.0	1.4	6.9	10.2	10.3
Housing, Water, Elec, Gas & other Fuels	23.6	-1.2	-0.3	-0.1	6.5	5.1	6.4
Furnishing & Household Equip. Maintenance	4.1	0.6	0.3	0.4	9.1	9.0	8.7
Health	2.8	0.9	0.4	0.2	8.7	10.5	9.8
Transport	5.9	4.6	-4.5	-6.5	17.8	3.4	-7.5
Communication	2.2	0.1	0.0	0.0	4.0	1.7	1.6
Recreation & Culture	1.6	0.2	0.1	0.1	5.5	5.1	4.9
Education	3.8	1.2	0.0	0.0	5.9	3.2	2.0
Restaurants & Hotels	6.9	0.1	0.1	0.2	4.2	8.5	8.6
Miscellaneous	4.9	0.1	1.0	0.1	8.6	11.9	11.9
Overall National CPI	100.0	0.6	-0.8	0.3	8.4	8.5	8.2

	Weights	MoM change			YoY change		
		May-19	Apr-20	May-20	May-19	Apr-20	May-20
I. Food Group	36.8	1.3	-1.0	1.5	9.0	10.4	10.6
Food & Non-Alcoholic Beverages	30.4	1.6	-1.3	1.8	9.7	10.7	10.9
Alcoholic Beverages & Tobacco	0.9	0.0	0.9	0.1	10.8	18.8	19.0
Restaurant & Hotels (Food Component)	5.5	0.3	0.0	0.1	5.1	7.7	7.4
II. Non-Food Group	63.2	0.3	-0.5	-0.4	8.3	6.2	5.4
Clothing & Footwear	8.0	1.6	0.0	1.5	7.0	9.5	9.5
Housing, Water, Elec, Gas & other Fuels	27.0	-1.2	-0.2	0.1	7.2	5.1	6.5
Furnishing & Household Equip. Maintenance	4.1	0.8	0.2	0.3	10.2	8.3	7.7
Health	2.3	0.9	0.0	0.2	8.5	9.4	8.7
Transport	6.1	4.2	-4.5	-6.4	18.2	4.1	-6.5
Communication	2.4	0.1	0.0	0.0	5.2	2.3	2.2
Recreation & Culture	1.7	0.3	0.1	0.0	5.1	4.9	4.6
Education	4.9	1.5	0.0	0.0	6.4	3.4	1.9
Restaurants & Hotels (Non-food Component)	1.9	-0.3	0.0	0.0	2.7	6.5	6.8
Miscellaneous	4.8	0.1	1.0	0.0	8.8	11.0	10.9
Overall Urban CPI	100.0	0.7	-0.7	0.3	8.5	7.7	7.3

Table A3: Rural CPI Inflation by Groups (YoY and MoM in percent)							
	Weights	MoM change			YoY change		
		May-19	Apr-20	May-20	May-19	Apr-20	May-20
I. Food Group	45.9	0.6	-1.7	1.4	9.7	12.9	13.7
Food & Non-Alcoholic Beverages	40.9	0.6	-2.0	1.5	10.1	12.8	13.7
Alcoholic Beverages & Tobacco	1.3	0.4	0.7	0.0	13.3	20.4	20.1
Restaurant & Hotels (Food Component)	3.8	-0.1	0.5	0.9	5.1	11.0	12.1
II. Non-Food Group	54.1	0.4	-0.5	-0.5	7.1	7.4	6.4
Clothing & Footwear	9.5	0.9	0.0	1.3	6.9	11.0	11.4
Housing, Water, Elec, Gas & other Fuels	18.5	-1.3	-0.5	-0.5	5.0	5.2	6.0
Furnishing & Household Equip. Maintenance etc.	4.1	0.4	0.5	0.5	7.4	10.1	10.2
Health	3.5	0.8	0.7	0.2	8.9	11.6	10.9
Transport	5.6	5.1	-4.5	-6.5	17.2	2.3	-9.0
Communication	2.0	0.1	0.0	0.0	2.1	0.8	0.7
Recreation & Culture	1.4	0.2	0.3	0.3	6.4	5.4	5.5
Education	2.1	0.1	0.0	0.0	3.9	2.5	2.4
Restaurants & Hotels (Non-food Component)	2.4	0.0	0.0	0.0	1.3	9.4	9.4
Miscellaneous	5.0	0.0	0.9	0.2	8.3	13.2	13.5
Overall Rural CPI		0.5	-1.1	0.3	8.3	9.8	9.7

Table A4: Top Ten Contributors to Urban CPI Inflation (YoY) in May 2020

Ranking Top Ten Contributors to Urban Consumption (2019 to May 2020)					
Items/ Contributors		Weights	YoY Change		Weighted Contribution (%)
			May-19	May-20	
A. Ranked by Weighted Contribution					
1	House Rent	19.26	6.29	4.20	11.36
2	Gas Charges	1.08	38.63	54.84	9.35
3	Milk Fresh	7.11	3.00	8.32	7.49
4	Potatoes	0.45	9.14	96.94	5.64
5	Readymade Food	5.52	5.08	7.37	5.51
6	Condiments And Spices	1.33	19.79	24.67	4.95
7	Wheat Flour	3.01	4.84	13.03	4.55
8	Vegetable Ghee	1.03	10.88	25.42	3.52
9	Personal Effects N.E.C.	0.94	10.98	23.07	3.52
10	Meat	2.04	10.26	11.29	3.42
Total		41.78			59.31
B. Ranked by Percentage Change					
1	Potatoes	0.45	9.14	96.94	5.64
2	Pulse Moong	0.17	33.67	83.21	1.53
3	Pulse Mash	0.12	11.27	56.73	0.51
4	Gas Charges	1.08	38.63	54.84	9.35
5	Pulse Masoor	0.16	7.12	40.86	0.61
6	Butter	0.09	13.73	37.41	0.49
7	Beans	0.04	10.08	30.54	0.16
8	Gur	0.04	29.65	25.65	0.12
9	Vegetable Ghee	1.03	10.88	25.42	3.52
10	Condiments And Spices	1.33	19.79	24.67	4.95
Total		4.52			26.87
C. Ranked by Weights					
1	House Rent	19.26	6.29	4.20	11.36
2	Milk Fresh	7.11	3.00	8.32	7.49
3	Readymade Food	5.52	5.08	7.37	5.51
4	Education	4.88	6.38	1.87	1.46
5	Electricity Charges	4.56	5.53	1.41	0.77
6	Wheat Flour	3.01	4.84	13.03	4.55
7	Appliances/Articles/Products For P	2.98	9.34	7.77	3.09
8	Motor Fuel	2.91	22.26	-19.52	-9.53
9	Cotton Cloth	2.22	11.60	9.73	2.98
10	Meat	2.04	10.26	11.29	3.42
Total		54.48			31.10

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 7.3 percent in May 2020.

Table A5: Top Ten Contributors to Urban CPI Inflation (MoM) in May 2020					
Items/ Contributors		Weights	MoM Change		Weighted Contribution (%)
			Apr-20	May-20	
A. Ranked by Weighted Contribution					
1	Chicken	1.36	-21.81	41.46	139.14
2	Milk Fresh	7.11	-4.29	4.63	98.22
3	Potatoes	0.45	-0.80	31.19	62.02
4	Fresh Fruits	1.44	17.71	9.72	55.13
5	Cotton Cloth	2.22	0.00	4.04	29.64
6	Condiments And Spices	1.33	-0.74	3.71	20.35
7	Water Supply	0.53	0.00	9.02	16.06
8	Tailoring	1.07	0.00	2.53	9.56
9	Meat	2.04	1.49	0.94	7.17
10	Beverages	0.89	1.10	1.44	4.11
		18.45			441.41
B. Ranked by Percentage Change					
1	Chicken	1.36	-21.81	41.46	139.14
2	Potatoes	0.45	-0.80	31.19	62.02
3	Fresh Fruits	1.44	17.71	9.72	55.13
4	Water Supply	0.53	0.00	9.02	16.06
5	Milk Fresh	7.11	-4.29	4.63	98.22
6	Cotton Cloth	2.22	0.00	4.04	29.64
7	Condiments And Spices	1.33	-0.74	3.71	20.35
8	Butter	0.09	0.41	2.58	1.02
9	Tailoring	1.07	0.00	2.53	9.56
10	Dessert Preparation	0.04	0.60	2.14	0.28
		15.65			431.43
C. Ranked by Weights					
1	House Rent	19.26	0.26	0.00	0.00
2	Milk Fresh	7.11	-4.29	4.63	98.22
3	Readymade Food	5.52	0.04	0.07	1.27
4	Education	4.88	0.00	0.00	0.00
5	Electricity Charges	4.56	0.00	0.00	0.00
6	Wheat Flour	3.01	-0.25	-0.17	-1.54
7	Appliances/Articles/Products For P	2.98	0.20	0.09	0.84
8	Motor Fuel	2.91	-8.85	-13.43	-138.80
9	Cotton Cloth	2.22	0.00	4.04	29.64
10	Meat	2.04	1.49	0.94	7.17
		54.48			-3.20
Note: Weighted contribution is estimated by multiplying the weights by the price change of an item; this is then reported as a share in MoM change in Urban CPI, which is 0.3 percent in May 2020.					

Table A6: Top and Bottom Fifteen Contributors to Urban CPI Inflation (YoY) in May 2020

<u>Top 15 Contributors</u>		<u>YoY Change</u>		Weighted Contribution (%)	
Items/ Contributors	Weights	May-19	May-20		
Ranked by Weighted Contribution					
1	House Rent	19.26	6.29	4.20	11.36
2	Gas Charges	1.08	38.63	54.84	9.35
3	Milk Fresh	7.11	3.00	8.32	7.49
4	Potatoes	0.45	9.14	96.94	5.64
5	Readymade Food	5.52	5.08	7.37	5.51
6	Condiments And Spices	1.33	19.79	24.67	4.95
7	Wheat Flour	3.01	4.84	13.03	4.55
8	Vegetable Ghee	1.03	10.88	25.42	3.52
9	Personal Effects N.E.C.	0.94	10.98	23.07	3.52
10	Meat	2.04	10.26	11.29	3.42
11	Appliances/Articles/Products For P	2.98	9.34	7.77	3.09
12	Cooking Oil	1.10	13.43	20.74	3.09
13	Cotton Cloth	2.22	11.60	9.73	2.98
14	Sugar	1.11	27.38	20.12	2.75
15	Footwear	1.48	6.73	11.45	2.22
Total		50.68			73.43
Bottom 15 Contributors					
1	Motor Fuel	2.91	22.26	-19.52	-9.53
2	Onions	0.59	98.61	-21.17	-1.81
3	Tomatoes	0.35	47.03	-39.49	-1.59
4	Fresh Fruits	1.44	24.46	-3.60	-1.02
5	Fresh Vegetables	1.53	20.34	-4.07	-0.81
6	Fish	0.39	12.20	-3.73	-0.19
7	Liquefied Hydrocarbons	0.51	7.97	-2.13	-0.16
8	Postal Services	0.02	0.93	0.00	0.00
9	Newspapers	0.07	26.29	0.00	0.00
10	Therapeutic Appliances And	0.01	0.61	0.80	0.00
11	Accommodation Services	0.13	0.76	0.46	0.01
12	Major Tools & Equipments	0.01	3.40	8.89	0.01
13	Electrical Appliances For Personal	0.05	1.53	1.87	0.01
14	Dental Services	0.02	-0.39	6.25	0.01
15	Motor Vehicle Tax	0.05	17.24	2.19	0.01
Total		8.05			-15.06

Table A7: Top and Bottom Fifteen Contributors to Urban CPI Inflation (MoM) in May 2020					
<u>Top 15 Contributors</u>					
Items/ Contributors	Weights	<u>MoM Change</u>		Weighted Contribution (%)	
		Apr-20	May-20		
Ranked by Weighted Contribution					
1 Chicken	1.36	-21.81	41.46		139.14
2 Milk Fresh	7.11	-4.29	4.63		98.22
3 Potatoes	0.45	-0.80	31.19		62.02
4 Fresh Fruits	1.44	17.71	9.72		55.13
5 Cotton Cloth	2.22	0.00	4.04		29.64
6 Condiments And Spices	1.33	-0.74	3.71		20.35
7 Water Supply	0.53	0.00	9.02		16.06
8 Tailoring	1.07	0.00	2.53		9.56
9 Meat	2.04	1.49	0.94		7.17
10 Beverages	0.89	1.10	1.44		4.11
11 Milk Products	0.64	-1.19	1.85		3.73
12 Rice	1.18	0.36	0.76		3.03
13 Mechanical Services	0.43	0.00	1.17		1.66
14 Personal Grooming Services	0.80	0.00	0.54		1.40
15 Readymade Food	5.52	0.04	0.07		1.27
Total	27.02				452.49
<u>Bottom 15 Contributors</u>					
1 Motor Fuel	2.91	-8.85	-13.43		-138.80
2 Fresh Vegetables	1.53	-3.86	-19.62		-106.67
3 Onions	0.59	-22.94	-23.35		-46.82
4 Eggs	0.51	14.71	-18.74		-32.77
5 Liquefied Hydrocarbons	0.51	-18.67	-4.12		-7.17
6 Wheat	0.61	-3.29	-3.37		-6.40
7 Tomatoes	0.35	-11.10	-7.74		-4.67
8 Cooking Oil	1.10	-0.44	-1.09		-4.49
9 Pulse Gram	0.17	10.83	-7.25		-4.18
10 Personal Effects N.E.C.	0.94	3.70	-0.69		-2.98
11 Vegetable Ghee	1.03	-1.01	-0.74		-2.96
12 Pulse Masoor	0.16	27.54	-4.43		-2.21
13 Wheat Flour	3.01	-0.25	-0.17		-1.54
14 Besan	0.08	8.03	-4.38		-1.25
15 Sugar	1.11	2.55	-0.31		-1.17
Total	14.62				-364.08

Table A8: Top and Bottom Fifteen Contributors to MoM Urban CPI Food Inflation in May 2020				
Top 15 Contributors				
Items/ Contributors	Weights	MoM Change		Weighted Contribution (%)
		Apr-20	May-20	
Ranked by Weighted Contribution				
1 Chicken	1.36	-21.81	41.46	139.14
2 Milk Fresh	7.11	-4.29	4.63	98.22
3 Potatoes	0.45	-0.80	31.19	62.02
4 Fresh Fruits	1.44	17.71	9.72	55.13
5 Condiments And Spices	1.33	-0.74	3.71	20.35
6 Meat	2.04	1.49	0.94	7.17
7 Beverages	0.89	1.10	1.44	4.11
8 Milk Products	0.64	-1.19	1.85	3.73
9 Rice	1.18	0.36	0.76	3.03
10 Readymade Food	5.52	0.04	0.07	1.27
11 Butter	0.09	0.41	2.58	1.02
12 Sweet Meat	0.35	0.13	0.45	0.56
13 Cigarettes	0.72	0.10	0.16	0.40
14 Dry Fruits	0.33	-2.24	0.32	0.35
15 Dessert Preparation	0.04	0.60	2.14	0.28
Total	23.50			396.80
Bottom 15 Contributors				
1 Fresh Vegetables	1.53	-3.86	-19.62	-106.67
2 Onions	0.59	-22.94	-23.35	-46.82
3 Eggs	0.51	14.71	-18.74	-32.77
4 Wheat	0.61	-3.29	-3.37	-6.40
5 Tomatoes	0.35	-11.10	-7.74	-4.67
6 Cooking Oil	1.10	-0.44	-1.09	-4.49
7 Pulse Gram	0.17	10.83	-7.25	-4.18
8 Vegetable Ghee	1.03	-1.01	-0.74	-2.96
9 Pulse Masoor	0.16	27.54	-4.43	-2.21
10 Wheat Flour	3.01	-0.25	-0.17	-1.54
11 Besan	0.08	8.03	-4.38	-1.25
12 Sugar	1.11	2.55	-0.31	-1.17
13 Gram Whole	0.09	4.38	-2.82	-0.88
14 Pulse Moong	0.17	23.11	-0.50	-0.39
15 Fish	0.39	-0.68	-0.17	-0.19
Total	10.90			-216.58

Table A9: Top and Bottom Fifteen Contributors to MoM Urban CPI Non-food Inflation in May 2020					
Top 15 Contributors		MoM Change			Weighted Contribution (%)
Items/ Contributors	Weights	Apr-20	May-20		
Ranked by Weighted Contribution					
1	Cotton Cloth	2.22	0.00	4.04	29.64
2	Water Supply	0.53	0.00	9.02	16.06
3	Tailoring	1.07	0.00	2.53	9.56
4	Mechanical Services	0.43	0.00	1.17	1.66
5	Washing Soap/Detergents/Match Box	1.41	0.55	0.26	1.23
6	Household Equipments	1.00	0.00	0.37	1.21
7	Furniture And Furnishing	0.48	0.00	0.65	1.01
8	Motor Vehicle Accessories	0.19	0.26	1.51	0.96
9	Doctor (Mbbs) Clinic Fee	0.40	0.00	0.54	0.94
10	Drugs And Medicines	1.07	0.08	0.24	0.94
11	Personal Grooming Services	2.98	0.20	0.09	0.84
12	Readymade Garments	1.32	0.01	0.18	0.81
13	Motor Vehicles	0.81	0.00	0.26	0.79
14	Construction Input Items	0.38	0.17	0.38	0.52
15	Woolen Cloth	0.84	0.01	0.18	0.49
Total		15.14			66.66
Bottom 15 Contributors					
1	Motor Fuel	2.91	-8.85	-13.43	-138.80
2	Liquefied Hydrocarbons	0.51	-18.67	-4.12	-7.17
3	Electrical Appliances For Personal	0.94	3.70	-0.69	-2.98
4	House Rent	19.26	0.26	0.00	0.00
5	Garbage Collection	0.11	1.41	0.00	0.00
6	Transport Services	1.75	0.01	0.00	0.00
7	Woolen Readymade Garments	0.43	0.00	0.00	0.00
8	Personal Effects N.E.C.	0.00	0.00	0.00	0.00
9	Appliances/Articles/Products For P	0.00	0.00	0.00	0.00
10	Postal Services	0.02	0.00	0.00	0.00
11	Motor Vehicle Tax	0.05	0.00	0.00	0.00
12	Newspapers	0.07	0.00	0.00	0.00
13	Communication Services	1.88	0.00	0.00	0.00
14	Gas Charges	1.08	0.00	0.00	0.00
15	Accommodation Services	0.05	0.00	0.00	0.00
Total		29.05			-148.95

Table A10: Top Ten Contributors to Rural CPI Inflation (YoY) in May 2020

Items/ Contributors		Weights	YoY Change		Weighted Contribution (%)
			May-19	May-20	
A. Ranked by Weighted Contribution					
1	Potatoes	0.74	4.02	126.56	8.49
2	Condiments And Spices	1.49	15.40	53.27	8.06
3	Vegetable Ghee	2.38	8.44	28.52	7.26
4	Milk Fresh	10.38	4.69	5.75	5.95
5	Solid Fuel	4.48	1.05	12.93	5.73
6	Readymade Food	3.80	5.07	12.06	4.89
7	Cotton Cloth	2.84	8.22	15.12	4.81
8	House Rent	8.61	6.49	5.14	4.73
9	Wheat Flour	3.43	8.62	14.87	4.53
10	Wheat	3.47	8.27	13.89	4.24
Total		41.62			58.69
B. Ranked by Percentage Change					
1	Potatoes	0.74	4.02	126.56	8.49
2	Pulse Moong	0.25	35.99	91.49	1.97
3	Condiments And Spices	1.49	15.40	53.27	8.06
4	Pulse Mash	0.15	15.99	49.26	0.44
5	Pulse Masoor	0.21	8.85	41.31	0.62
6	Beans	0.09	7.83	35.02	0.33
7	Water Supply	0.06	0.00	30.55	0.21
8	Vegetable Ghee	2.38	8.44	28.52	7.26
9	Postal Services	0.01	2.69	28.13	0.02
10	Personal Effects N.E.C.	1.21	13.86	25.40	3.54
Total		6.58			30.93
C. Ranked by Weights					
1	Milk Fresh	10.38	4.69	5.75	5.95
2	House Rent	8.61	6.49	5.14	4.73
3	Solid Fuel	4.48	1.05	12.93	5.73
4	Readymade Food	3.80	5.07	12.06	4.89
5	Wheat	3.47	8.27	13.89	4.24
6	Electricity Charges	3.44	5.53	1.41	0.45
7	Wheat Flour	3.43	8.62	14.87	4.53
8	Cotton Cloth	2.84	8.22	15.12	4.81
9	Motor Fuels	2.49	22.60	-21.54	-6.91
10	Vegetable Ghee	2.38	8.44	28.52	7.26
Total		45.32			35.67
Note: Weighted contribution is estimated by multiplying the weights by the price change of an item; this is then reported as a share in YoY change in Rural CPI, which is 9.7 percent in May 2020.					

Table A11: Top Ten Contributors to Rural CPI Inflation (MoM) in May 2020					
Items/ Contributors		Weights	MoM Change		Weighted Contribution (%)
			Apr-20	May-20	
A. Ranked by Weighted Contribution					
1	Chicken	1.46	-19.84	41.15	132.55
2	Potatoes	0.74	-6.57	41.55	114.79
3	Milk Fresh	10.38	-4.72	4.23	114.41
4	Fresh Fruits	1.45	23.26	11.46	58.70
5	Condiments And Spices	1.49	7.95	8.60	47.28
6	Cotton Cloth	2.84	0.00	1.31	12.24
7	Tailoring	1.30	0.00	2.86	11.03
8	Readymade Food	3.80	0.53	0.89	10.30
9	Footwear	1.92	0.00	1.22	6.69
10	Rice	1.55	1.53	1.09	6.20
		26.94			514.19
B. Ranked by Percentage Change					
1	Potatoes	0.74	-6.57	41.55	114.79
2	Chicken	1.46	-19.84	41.15	132.55
3	Fresh Fruits	1.45	23.26	11.46	58.70
4	Condiments And Spices	1.49	7.95	8.60	47.28
5	Pulse Moong	0.25	18.25	4.36	4.44
6	Milk Fresh	10.38	-4.72	4.23	114.41
7	Tailoring	1.30	0.00	2.86	11.03
8	Gur	0.15	1.81	2.75	1.24
9	Pulse Mash	0.15	6.94	2.13	0.72
10	Milk Products	0.96	-2.78	2.06	5.33
		18.34			490.49
C. Ranked by Weights					
1	Milk Fresh	10.38	-4.72	4.23	114.41
2	House Rent	8.61	0.45	0.00	0.00
3	Solid Fuel	4.48	0.15	-0.03	-0.40
4	Readymade Food	3.80	0.53	0.89	10.30
5	Wheat	3.47	-4.43	-7.57	-73.18
6	Electricity Charges	3.44	0.00	0.00	0.00
7	Wheat Flour	3.43	-0.39	-1.41	-12.88
8	Cotton Cloth	2.84	0.00	1.31	12.24
9	Motor Fuels	2.49	-9.42	-14.01	-105.49
10	Vegetable Ghee	2.38	-0.34	-0.44	-3.75
		45.32			-58.74
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 0.3 percent in May 2020.					

Table A12: Top and Bottom Fifteen Contributors to Rural CPI Inflation (YoY) in May 2020

<u>Top 15 Contributors</u>		<u>YoY Change</u>		Weighted Contribution (%)	
Items/ Contributors	Weights	May-19	May-20		
Ranked by Weighted Contribution					
1	Potatoes	0.74	4.02	126.56	8.49
2	Condiments And Spices	1.49	15.40	53.27	8.06
3	Vegetable Ghee	2.38	8.44	28.52	7.26
4	Milk Fresh	10.38	4.69	5.75	5.95
5	Solid Fuel	4.48	1.05	12.93	5.73
6	Readymade Food	3.80	5.07	12.06	4.89
7	Cotton Cloth	2.84	8.22	15.12	4.81
8	House Rent	8.61	6.49	5.14	4.73
9	Wheat Flour	3.43	8.62	14.87	4.53
10	Wheat	3.47	8.27	13.89	4.24
11	Sugar	2.03	28.78	19.32	3.72
12	Personal Effects N.E.C.	1.21	13.86	25.40	3.54
13	Rice	1.55	8.57	11.93	2.37
14	Cigarettes	1.24	13.80	20.43	2.34
15	Marriage Hall Charges	2.25	1.34	9.92	2.23
Total		49.90			72.89
Bottom 15 Contributors					
1	Motor Fuels	2.49	22.60	-21.54	-6.91
2	Tomatoes	0.51	67.45	-45.50	-1.92
3	Onions	0.90	76.66	-13.69	-1.20
4	Liquefied Hydrocarbons	1.00	10.02	-7.73	-0.84
5	Fresh Vegetables	2.09	26.82	-4.15	-0.84
6	Motor Vehicle Tax	0.02	17.87	0.00	0.00
7	Newspapers	0.02	33.33	0.00	0.00
8	Accommodation Services	0.14	0.00	0.00	0.00
9	Garbage Collection	0.01	1.94	3.68	0.00
10	Dessert Preparation	0.01	4.52	8.16	0.01
11	Honey	0.03	5.47	3.66	0.01
12	Major Tools And Equipments	0.03	1.38	3.70	0.01
13	Fish	0.26	11.35	0.55	0.02
14	Mustard Oil	0.01	5.09	13.87	0.02
15	Dental Services	0.02	1.67	11.38	0.02
Total		7.55			-11.62

Table A13: Top and Bottom Fifteen Contributors to Rural CPI Inflation (MoM) in May 2020				
<u>Top 15 Contributors</u>				
Items/ Contributors	Weights	<u>MoM Change</u>		Weighted Contribution (%)
		Apr-20	May-20	
Ranked by Weighted Contribution				
1 Chicken	1.46	-19.84	41.15	132.55
2 Potatoes	0.74	-6.57	41.55	114.79
3 Milk Fresh	10.38	-4.72	4.23	114.41
4 Fresh Fruits	1.45	23.26	11.46	58.70
5 Condiments And Spices	1.49	7.95	8.60	47.28
6 Cotton Cloth	2.84	0.00	1.31	12.24
7 Tailoring	1.30	0.00	2.86	11.03
8 Readymade Food	3.80	0.53	0.89	10.30
9 Footwear	1.92	0.00	1.22	6.69
10 Rice	1.55	1.53	1.09	6.20
11 Milk Products	0.96	-2.78	2.06	5.33
12 Meat	1.71	0.66	0.95	5.22
13 Pulse Moong	0.25	18.25	4.36	4.44
14 Appliances/Articles/Products For	2.27	0.28	0.60	3.64
15 Washing Soaps, Detergents And	1.70	0.93	0.48	2.27
Total	33.84			535.08
<u>Bottom 15 Contributors</u>				
1 Fresh Vegetables	2.09	-11.19	-21.08	-132.62
2 Motor Fuels	2.49	-9.42	-14.01	-105.49
3 Wheat	3.47	-4.43	-7.57	-73.18
4 Onions	0.90	-25.01	-21.77	-54.41
5 Liquefied Hydrocarbons	1.00	-12.95	-9.69	-27.78
6 Eggs	0.57	11.21	-13.82	-22.18
7 Tomatoes	0.51	-5.72	-21.82	-16.51
8 Wheat Flour	3.43	-0.39	-1.41	-12.88
9 Vegetable Ghee	2.38	-0.34	-0.44	-3.75
10 Cooking Oil	0.60	-0.08	-1.13	-2.31
11 Sugar	2.03	1.99	-0.34	-2.03
12 Pulse Gram	0.28	6.77	-2.41	-1.93
13 Personal Effects N.E.C.	1.21	2.57	-0.39	-1.77
14 Besan	0.07	2.80	-2.19	-0.47
15 Solid Fuel	4.48	0.15	-0.03	-0.40
Total	25.50			-457.71

Table A14: Top and Bottom Fifteen Contributors to MoM Rural CPI Food Inflation in May 2020

<u>Top 15 Contributors</u>		<u>MoM Change</u>		Weighted Contribution (%)	
Items/ Contributors	Weights	Apr-20	May-20		
Ranked by Weighted Contribution					
1	Chicken	1.46	-19.84	41.15	132.55
2	Potatoes	0.74	-6.57	41.55	114.79
3	Milk Fresh	10.38	-4.72	4.23	114.41
4	Fresh Fruits	1.45	23.26	11.46	58.70
5	Condiments And Spices	1.49	7.95	8.60	47.28
6	Readymade Food	3.80	0.53	0.89	10.30
7	Rice	1.55	1.53	1.09	6.20
8	Milk Products	0.96	-2.78	2.06	5.33
9	Meat	1.71	0.66	0.95	5.22
10	Pulse Moong	0.25	18.25	4.36	4.44
11	Beverages	0.55	0.92	1.40	2.15
12	Gur	0.15	1.81	2.75	1.24
13	Pulse Masoor	0.21	15.66	1.90	1.01
14	Fish	0.26	-2.12	1.23	0.89
15	Pulse Mash	0.15	6.94	2.13	0.72
Total		25.13			505.23

<u>Bottom 15 Contributors</u>					
1	Fresh Vegetables	2.09	-11.19	-21.08	-132.62
2	Wheat	3.47	-4.43	-7.57	-73.18
3	Onions	0.90	-25.01	-21.77	-54.41
4	Eggs	0.57	11.21	-13.82	-22.18
5	Tomatoes	0.51	-5.72	-21.82	-16.51
6	Wheat Flour	3.43	-0.39	-1.41	-12.88
7	Vegetable Ghee	2.38	-0.34	-0.44	-3.75
8	Cooking Oil	0.60	-0.08	-1.13	-2.31
9	Sugar	2.03	1.99	-0.34	-2.03
10	Pulse Gram	0.28	6.77	-2.41	-1.93
11	Besan	0.07	2.80	-2.19	-0.47
12	Gram Whole	0.11	1.30	-1.17	-0.37
13	Mustard Oil	0.01	-0.47	-0.96	-0.04
14	Butter	0.33	0.09	0.00	0.00
15	Nimco	0.08	0.09	0.00	0.00
Total		16.86			-322.67

Table A15: Top and Bottom Fifteen Contributors to MoM Rural CPI Non-food Inflation in May 2020				
Top 15 Contributors		MoM Change		
Items/ Contributors	Weights	Apr-20	May-20	Weighted Contribution (%)
Ranked by Weighted Contribution				
1 Cotton Cloth	2.84	0.00	1.31	12.24
2 Tailoring	1.30	0.00	2.86	11.03
3 Footwear	1.92	0.00	1.22	6.69
4 Appliances/Articles/Products For	2.27	0.28	0.60	3.64
5 Washing Soaps, Detergents And	1.70	0.93	0.48	2.27
6 Hosiery	0.43	0.00	1.26	1.88
7 Drugs And Medicines	1.58	0.36	0.37	1.82
8 Furniture And Furnishing	0.58	0.45	1.08	1.80
9 Woolen Cloth	1.10	0.00	0.58	1.78
10 Readymade Garments	1.13	0.00	0.48	1.61
11 Personal Grooming Services	1.54	0.00	0.28	1.33
12 Household Equipments	1.28	0.00	0.32	1.19
13 Construction Input Items	0.63	0.72	0.58	0.98
14 Stationery	0.37	0.32	0.74	0.79
15 Construction Wage Rates	0.25	0.71	0.84	0.70
Total	18.92			49.76
Bottom 15 Contributors				
1 Motor Fuels	2.49	-9.42	-14.01	-105.49
2 Liquefied Hydrocarbons	1.00	-12.95	-9.69	-27.78
3 Personal Effects N.E.C.	1.21	2.57	-0.39	-1.77
4 Solid Fuel	4.48	0.15	-0.03	-0.40
5 House Rent	8.61	0.45	0.00	0.00
6 Hospitals Services	1.01	1.35	0.00	0.00
7 Doctor (Mbbs) Clinic Fee	0.51	0.78	0.00	0.00
8 Mechanical Services	0.36	0.60	0.00	0.00
9 Garbage Collection	0.01	4.49	0.00	0.00
10 Education	2.13	0.00	0.00	0.00
11 Text Books	0.50	0.00	0.00	0.00
12 Dental Services	0.02	0.00	0.00	0.00
13 Woolen Readymade Garments	0.54	0.00	0.00	0.00
14 Communication Apparatus	0.34	0.00	0.00	0.00
15 Accommodation Services	0.14	0.00	0.00	0.00
Total	23.35			-135.44

Table A16: Distribution of Price Changes (YoY) - Selected Urban CPI Items: May 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-Beverages	Tomatoes, Cucumber (Kheera), Onions, Chilies (Green), Fish Rahu (Medium Size)	Rice Basmati 385/386, Chicken Farm Broiler (Live), Mineral Water Nestle 1.5 Liter	Sweetmeat (Mixed Mithai), Tea Lipton Yellow Label 190 Gm Packet	Potatoes, Cardamom Small (Average Quality), Pulse Moong (Washed), Pulse Mash (Washed), Pulse Masoor (Washed), Butter Local Packed 50 Gm, Beans Red/White (Lobia), Ginger (Adrak)
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	Vest "Baniyan" For Men Average Quality, Pant Cloth Wash & Wear (Average Quality), Brassier (Average Quality), Lawn Printed Gul Ahmed/AI Karam	Awami Suit Gents Wash & Wear (Average Quality), Chaddar (Wash-N-Wear) (2X2.5 Meter), Children Shoes Power Lite Bata, Shirt Boy Length 24"/26"	Gents Shoes Servis, Gents Sandal Bata, Cheeta 50 Size 3-5 Servis, Dopatta Cotton (Average Quality), Gents Shoes Paul Bata, Heavy Weight Suiting Lawrance Pur (Average Quality), Long Cloth 57" Gul Ahmed/AI Karam, Shoe Repair Full Sole, Dopatta Georgette (Average Quality)
Housing, Water, Elect, Gas & other Fuels	Lpg 11.67 Kg Cylinder, Electricity Charges 51-100 Units, Electricity Charges 101-300 Units, Electricity Charges 301-700 Units	Electricity Charges Above 700 Units, Cement (Local) 50 Kg Bag, House Rent Combined, Cement Blocks (6"X8"X12"), Electricity Charges Combined	Charges For Refuse/Waste Collection, Unskilled Labor Wage Rate, Mason Wage Rate, Sand (Black Pit), Painter Wage Rate, Plumber Wage Rate, Bajri, Firewood Whole	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, Water Charges Per House, Iron Bars (M.S. Bar) 1/2 " 40 Grade, Bricks New 1St Class
Furnishing & Household Equip. Maintenance etc		Split Air Conditioner Orient/Lg/Dawlance 1.5 Ton, Lota Plastic Medium Size (Average Quality), Sofa Set Five Seater	Harpic 500Ml Bottle, Sufi Washing Soap 250 Gm Cake, Chair Sheesham Wood With Arm	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	Hydriyllin Syrup 120 Ml Bottle, Johar Joshanda Instant (Sachet) Packet	Dental Extraction Fee, Paradol Tablets Plain, Ecg Charges, X-Ray (Chest) Charges Daonil Tablets 5 Mg	Dettol Medium Bottle, Betnovate-N Ointment 10 Gm Tube, Flagyl Tablets 400 Mg, Dental Surgeon Fee Per Visit	Ventolin Tablets 2 Mg, Septtran Tablets, Calpol Syrup 100 Ml Bottle, Inderal Tablets 10 Mg, Doctor (Mbbs) Clinic Fee, Lederplex Syrup Bottle, Amoxil Capsule 250 Mg
Transport	Hi-Speed Diesel, Air Fare Economy Class Per Kilometer (National Average), Petrol Super, Bus Fare Outside City (Non Ac)	Bus Fare Outside City (Ac), Motorcycle United/Unique 70 Cc, Tire Motorcycle Cdg 70 (Back Wheel), Car Tax 800 Cc To 1500 Cc, Cng	Train Fare Economy Per Person, Train Fare Ac Lower Per Person, Auto Rickshaw Fare, Motorcycle Honda Cdg 70	Suzuki Fare Maximum Within City, Bus Fare Maximum Within City, Mini Bus Fare Maximum Within City, Car Suzuki 1000 Cc, Suzuki Fare Minimum Within City, Car Toyota 1300 Cc Xli, Mini Bus Fare Minimum Within City
Communication	Courier Charges Minimum Within Zone Outside City (Tcs), Telephone Call Charges	Internet Charges (Dsl) 1 Mb (Unlimited)	Mobile Set With Rear Camera And Without Touch Screen	
Recreation & Culture	Mathematics Book Class V (Text Book Board), Urdu Book Class V (Text Book Board), Newspaper Daily Jang, Mag The Weekly (Magazine)	Laptop Dell/Hp/Acer Core I5, Display (14"-15"), English Book Class Xi Complete Set, English Book Ba/B.Sc., Recreational Park Charges (Minimum Playland Ticket)	Urdu Book Ba/B.Sc, Led Sony/Samsung 32" Colored, Lead Pencil Goldfish, English Local, Book Class Vi, Mathematics Book Class Xi (Text Book Board)	English Book Class Ix And X, Urdu Book Class Xi/Inter, Photostat Paper 70 Gm, Ballpoint Pen
Education	Coaching Fee For Class Xi/Xii Commerce Group	Government College Fee First Year, Private School Fee English Medium Average Standard (Class I)	Government Engineering University Tuition Fee For Be (1St Year), Tuition Fee Private University M.Sc/M.A	
Restaurant & Hotels		Cooked Chicken At Average Hotel, Chicken Biryani Full/Double	Bread Tandoori Standard Size, Cooked Beef At Average Hotel, Cooked Daal At Average Hotel	
Miscellaneous		Tissue Paper Perfumed Box 100 Napkins, Artificial Jewelry (Locket Set) (Average Quality)	Toilet Soap Lifebuoy 115 Gm, Gold Tezabi 24 Carett, Pampers (Medium Size), Disposable Razor Gillette Blue, Tooth Brush (Shield), Silver Tezabi 24 Carett, Li, Tooth Paste Colgate 75 Gm, Blade Treet Ordinary (10 No. Packet), Hair Oil Hair Cut Charges For Men (Kala Kola Hair Tonic)	

Table A17: Distribution of Price Changes (YoY) - Selected Rural CPI Items: May 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, Muskmelon (Kharbuza), Bottlegourd (Loki), Cucumber (Kheera), Karela, Turai	Chicken Farm Broiler (Live), Honey Mahaba Bottle 500 Gm, Nimko (Loose, Average Quality)	Tea Lipton Yellow Label 190 Gm Packet, Beef With Bone (Average Quality), Vermicelli (Packet)	Potatoes, Chilies Powder Loose, Pulse Moong (Washed), Ginger (Adrak), Pulse Mash (Washed), Pulse Masoor (Washed), Beans Red/White (Lobia)
Alcoholic Beverages & Tobacco				Cigarettes Capstan 20'S Packet, Cigarettes Gold Leaf 20'S Packet, Chewing Tobacco (Niswar), Tobacco Hukka Twisted
Clothing & Footwear			Vest "Baniyan" For Men Average Quality, Footware Gents Local (Average Quality), Socks Nylon Local (Average Quality), Georgette (Average Quality)	Brassier (Average Quality), Dopatta Cotton (Average Quality), Lawn Printed (Average Quality), Shirting (Average Quality), Long Cloth, Shoe Repair Full Sole, Footware Children Local (Average Quality), Underwear Medium Size (Average Quality)
Housing, Water, Elect, Gas & other Fuels	Kerosene Oil, Lpg 11.67 Kg Cylinder, Electricity Charges 51-100 Units, Electricity Charges 101-300 Units, Electricity Charges 301-1000 Units	Electricity Charges Above 1000 Units, Charges For Refuse/Waste Collection, Electricity Charges Combined Units, Electricity Charges 301-1000 Units	Plumber Wage Rate, Bajri, House Rent Combined	Water Charges Per House, Sand (Black Pit), Bricks New 1st Class, Carpenter Wage Rate, Coal, Painter Wage Rate, Firewood Whole, Unskilled Labor Wage Rate, Electrician Charges, Mason Wage Rate
Furnishing & Household Equip. Maintenance etc.		Cleanser Powder Vim 900 Gm, Polybag, Refrigerator Dawlance/Pel 10 Cubic Feet Double Door	Aluminium Cooking Pan (Degchi), Energy Saver Philips 14 Watt, Ceiling Fan 56" Pak/Younas/Millat	Tube Light Philips 40 Watt, Robin Blue Liquid 75 Ml Bottle, Towel Medium Size (2 X 3'), Washing Soap 250 Gm Cake (Specify Name), Bucket (Balti) Plastic Medium Size, Boot Polish Cherry/Kiwi 42 Ml, Cot Iron (Charpai)
Health	Hydrollin Syrup 120 Ml Bottle	Cost Of Surgery (C-Section), Johar Joshanda Instant (Sachet) Packet	Cac 1000 Tablets Sandobz Bottle, Panadol Tablets Plain, Physiotherapist Fee Per Visit	Inderal Tablets 10 Mg, Dettol Medium Bottle, Doctor (Mbbs) Clinic Fee, Amoxil Capsule 250 Mg, Daonil Tablets 5 Mg, Blood Test (Cp) Charges, Dental Surgeon Fee Per Visit
Transport	Hi-Speed Diesel, Air Fare Economy Class Per Kilometer, Petrol Super, Car Tax 800 Cc To 1500 Cc	Cng	Train Fare Economy Per Person, Tire Motorcycle Cd 70 (Back Wheel), Car Suzuki 800 Cc Without Ac, Tire Cycle, Motorcycle Honda Cd 70	Tire Car Mehran Tubeless (General), Mobil Oil (Havoline 20W-50), Bicycle
Communication	Telephone Call Charges, Mobile Call Charges	Internet Charges (Dsl) 1 Mb (Unlimited), Mobile Set With Rear Camera And Without Touch Screen		Postal Registration Charges
Recreation & Culture	Urdu Books Class V (Text Book Board), Newspaper Daily Jang	Exercise Book (With Lines) 80 To 100 Pages, English Books Class Ix And X, English Books Class Xi Complete Set, Lead Pencil Goldfish, Ballpoint Pen Local	Led Sony/Samsung 32" Colored, English Books Class Vi	Pets Feed
Education	Vocational Training Basic Computer Short Course Fee (3 Months)	Private School Fee English Medium Average Standard (Class V)		
Restaurant & Hotels			Cooked Beef At Average Hotel, Cooked Chicken At Average Hotel	Cooked Daal At Average Hotel, Chicken Biryani Full/Double, Tea Prepared Ordinary, Bread Tandoori Standard Size
Miscellaneous		Hair Removing Cream (Eu-Cream) 30Ml Tube, Toilet Soap Lux 75 Gm, Shampoo Sun Silk/Pantene 90 Ml Bottle	Purse Ladies Medium Size (Average Quality), Tooth Brush (Shield)	Gold Tezabi 24 Caratt, Shaving Charges, Disposable Razor Gillette Blue Ii, Hair Cut Charges For Men, Hair Color (Kala Kola), Blade Treet Ordinary (10 No. Packet)

Table A18: Distribution of Price Changes (YoY) - WPI Items: May 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	Vegetables, Hides, Skins & Fur Skins, Raw, Millet / Bajra, Fresh Fruits, Raw Animal Materials/ Wool	Fibre Crops, Poultry	Wheat, Rice, Sugar Crops, Fuel Wood In Logs, Fish Live Fresh Or Chilled, Dry Fruits	Edible Roots / Potatoes, Stimulant & Spice Crops, Pulses, Cotton Seeds, Sorghum / Jowar, Unmanufactured Tobacco, Eggs, Raw Milk From Bovine Animals, Other Oil Seeds, Maize
Ores & Minerals, Electricity Gas & Water	Coal Not Agglomerated		Salt & Pure Sodium Chloride	Natural Gas Liquefied, Electrical Energy
Food Products, Beverages and Tobacco, Textiles, Apparel and Leather Products	Vegetables & Fruit Juice, Cotton Yarn, Quilts, Nylon Yarn, Tobacco Products	Bed Sheets, Other Leather N.E.C, Silk & Reyon Fabrics, Sugar Confectionary, Other Food Products, Leather Without Hair, Other Fabrics, Blended Yam, Blankets, Hosiery Products	Cotton Fabrics, Fruit Juices, Ice Cream, Woolen Carpets, Coffee & Tea, Vegetable Oils Refined, Readymade Garments, Processed Liquid Milk, Dried Fruits & Nuts, Towels, Mineral Water, Dairy Products N.E.C, Beverages	Vegetable Ghee, Chocolate, Footwears, Sugar Refined, Oil Cakes, Other Cereal Flour, Wheat Flour, Meat Of Animals, Milk & Cream In Solid Form, Woven Fabrics, Spices, Synthetic Carpets
Other Transportable Goods except Metal Products, Machinery and Equipments	Furnace Oil, Kerosine Oil, Diesel Oil, Motor Spirit, Soaps & Detergents, Fertilizers, Insecticides, Hard Board	Paints & Varnishes, Matches, Glass Sheets, Pesticides, Plastic Products, Timber	Auto Tyres, Other Glass Articles, Chemicals, Ceramics & Sanitary Fixture, Cement, Mobil Oil	Dyeing Material, Bed Foam, Printing Paper, Medicines, Steel Bar & Sheets, Bricks, Blocks & Tiles
Metal Product Machinery & Equipment	Vacuum Pumps, Engines & Motors, Concrete Mixture	Chuff Cutter, Radio & Television, Air Conditioners, Motorcycles	Lighting Equipments, Electric Wires	Lathe Machines, Cultivators, Bicycles, Motor Vehicles, Fridge, Washm, Sewm, Fans, Iron, Pipe Fittings, Steel Products, Tractors

Table A19: International Commodity Prices/Indices				
	Feb-20	Mar-20	Apr-20	May-20
Energy				
Crude Oil (US\$ per barrel) *	53.3	32.2	21.0	30.4
Energy Index (2010 = 100)	65.0	42.1	29.4	38.8
Food				
Rice (\$/MT)	450.0	494.0	564.0	510.0
Wheat (\$/MT)	215.3	209.1	219.0	205.8
Sugar (US cent/ pound)^	14.8	11.8	10.2	11.0
Palm Oil (\$/MT)	728.8	635.2	608.9	573.9
Soybean Oil (\$/MT)	800.4	747.8	680.0	683.5
Non-Food Non-Energy				
Cotton Outlook 'A' Index #^	76.6	67.7	63.5	65.7
Metal Price Index (2010 = 100)	76.0	70.5	67.3	68.9
Copper (\$/MT)	5,687.8	5,182.6	5,058.0	5,239.8
Aluminum (\$/MT)	1,688.1	1,610.9	1,459.9	1,466.4
Iron Ore (\$ cents/dry MT)	87.7	89.0	84.7	93.7
Tin (\$/MT)	16,480.3	15,290.9	14,952.8	15,401.9
Nickel (\$/MT)	12,715.6	11,846.2	11,804.0	12,179.6
Zinc (\$/MT)	2,113.2	1,903.6	1,903.4	1,975.3
Lead (\$/MT)	1,872.5	1,734.4	1,657.6	1,626.3
Uranium (\$/MT)@	24.8	27.4	33.3	33.9
DAP (\$/MT)	279.4	276.2	282.0	263.0
Urea (\$/MT)	214.4	231.1	235.0	201.9
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: 1 US \$ / 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	131.69
Apr	106.91	111.15	120.33	131.59
May	106.36	111.65	121.05	131.01
Jun	106.54	112.58	121.63	
Seasonally Adjusted Series				
Jul	102.91	106.88	114.02	123.59
Aug	102.50	107.03	113.67	125.64
Sep	102.87	107.72	113.62	126.60
Oct	103.33	108.34	115.39	128.14
Nov	103.80	109.00	115.16	129.72
Dec	104.21	110.01	115.88	130.50
Jan	104.66	110.14	116.26	133.17
Feb	105.80	110.47	117.88	132.44
Mar	106.78	110.59	120.11	132.35
Apr	106.98	111.23	120.42	130.71
May	106.90	112.22	121.68	131.71
Jun	106.99	113.07	122.15	

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	131.49
Apr	107.20	111.94	121.29	130.60
May	106.86	112.53	122.11	130.99
Jun	107.08	113.34	122.52	
Seasonally Adjusted Series				
Jul	102.76	107.24	114.46	124.44
Aug	102.34	107.55	114.20	126.39
Sep	102.71	108.06	114.20	127.45
Oct	103.13	108.59	116.25	128.87
Nov	103.64	109.27	116.11	130.10
Dec	104.08	110.40	116.88	130.90
Jan	104.79	110.50	117.32	133.05
Feb	105.91	110.91	118.88	132.16
Mar	106.88	111.13	121.02	132.23
Apr	107.18	111.93	121.28	130.60
May	107.21	112.89	122.52	131.45
Jun	107.41	113.69	122.89	

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	132.00
Apr	106.47	109.95	118.89	130.58
May	105.60	110.33	119.45	131.03
Jun	105.73	111.44	120.29	
Seasonally Adjusted Series				
Jul	103.13	106.32	113.36	122.32
Aug	102.74	106.25	112.87	124.51
Sep	103.12	107.22	112.74	125.31
Oct	103.62	107.97	114.11	127.04
Nov	104.03	108.61	113.72	129.15
Dec	104.39	109.42	114.38	129.89
Jan	104.45	109.59	114.66	133.37
Feb	105.63	109.82	116.38	132.87
Mar	106.64	109.78	118.74	132.53
Apr	106.68	110.17	119.14	130.87
May	106.44	111.20	120.40	132.09
Jun	106.37	112.12	121.03	

Table A23: National CPI Monthly & Average Seasonal Factors					
Period	FY17	FY18	FY19	FY20	Average
Jul	100.26	100.25	100.24	100.22	100.24
Aug	100.29	100.26	100.23	100.20	100.24
Sep	100.35	100.30	100.25	100.20	100.28
Oct	100.84	100.82	100.80	100.80	100.81
Nov	100.86	100.87	100.89	100.91	100.88
Dec	99.88	99.92	99.95	99.97	99.93
Jan	99.88	99.88	99.88	99.89	99.88
Feb	99.28	99.32	99.36	99.40	99.34
Mar	99.40	99.43	99.46	99.50	99.45
Apr	99.93	99.92	99.92	99.91	99.92
May	99.49	99.50	99.49	99.47	99.49
Jun	99.58	99.57	99.57		99.57

Table A24: Urban CPI Monthly & Average Seasonal Factors					
Period	FY17	FY18	FY19	FY20	Average
Jul	100.43	100.43	100.42	100.41	100.42
Aug	100.38	100.35	100.33	100.30	100.35
Sep	100.35	100.30	100.25	100.21	100.30
Oct	100.71	100.70	100.68	100.68	100.70
Nov	100.69	100.70	100.72	100.73	100.70
Dec	99.67	99.71	99.74	99.74	99.70
Jan	99.81	99.80	99.79	99.79	99.80
Feb	99.26	99.29	99.33	99.37	99.29
Mar	99.34	99.37	99.40	99.44	99.37
Apr	100.02	100.01	100.01	100.00	100.01
May	99.68	99.68	99.67	99.65	99.67
Jun	99.69	99.69	99.70		99.70

Table A25: Rural CPI Monthly & Average Seasonal Factors					
Period	FY17	FY18	FY19	FY20	Average
Jul	99.99	99.98	99.95	99.92	99.96
Aug	100.15	100.11	100.08	100.04	100.10
Sep	100.36	100.30	100.24	100.19	100.27
Oct	101.02	101.00	100.98	100.98	100.99
Nov	101.11	101.13	101.15	101.18	101.14
Dec	100.19	100.24	100.28	100.30	100.25
Jan	99.99	100.01	100.02	100.04	100.01
Feb	99.32	99.36	99.40	99.44	99.38
Mar	99.49	99.52	99.56	99.60	99.54
Apr	99.81	99.80	99.79	99.78	99.80
May	99.21	99.22	99.21	99.19	99.21
Jun	99.40	99.39	99.39		99.39

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	0.04
Apr	0.72	1.08	0.73	-0.84
May	-0.52	0.46	0.60	0.32
Jun	0.17	0.83	0.48	
Seasonally Adjusted Series				
Jul	0.77	-0.11	0.84	1.18
Aug	-0.39	0.14	-0.30	1.66
Sep	0.36	0.65	-0.05	0.76
Oct	0.45	0.57	1.56	1.22
Nov	0.45	0.61	-0.21	1.23
Dec	0.40	0.92	0.63	0.60
Jan	0.43	0.12	0.32	2.05
Feb	1.09	0.31	1.40	-0.55
Mar	0.93	0.11	1.89	-0.07
Apr	0.18	0.58	0.26	-1.24
May	-0.08	0.89	1.04	0.77
Jun	0.09	0.76	0.39	

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	0.13
Apr	0.96	1.37	0.83	-0.68
May	-0.32	0.53	0.68	0.30
Jun	0.21	0.72	0.34	
Seasonally Adjusted Series				
Jul	0.74	-0.15	0.67	1.26
Aug	-0.41	0.28	-0.22	1.57
Sep	0.35	0.47	0.00	0.84
Oct	0.42	0.49	1.79	1.12
Nov	0.49	0.63	-0.12	0.95
Dec	0.42	1.04	0.66	0.62
Jan	0.68	0.09	0.38	1.64
Feb	1.06	0.37	1.33	-0.67
Mar	0.92	0.20	1.80	0.05
Apr	0.28	0.72	0.22	-1.23
May	0.02	0.86	1.02	0.65
Jun	0.19	0.71	0.30	

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	-0.10
Apr	0.36	0.64	0.58	-1.08
May	-0.82	0.35	0.47	0.34
Jun	0.12	1.01	0.70	
Seasonally Adjusted Series				
Jul	0.81	-0.04	1.10	1.06
Aug	-0.37	-0.07	-0.43	1.79
Sep	0.36	0.91	-0.12	0.64
Oct	0.49	0.70	1.22	1.38
Nov	0.39	0.59	-0.34	1.66
Dec	0.35	0.75	0.58	0.57
Jan	0.05	0.16	0.24	2.68
Feb	1.13	0.21	1.50	-0.37
Mar	0.95	-0.04	2.03	-0.26
Apr	0.04	0.36	0.34	-1.25
May	-0.22	0.93	1.06	0.94
Jun	-0.06	0.83	0.52	

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)

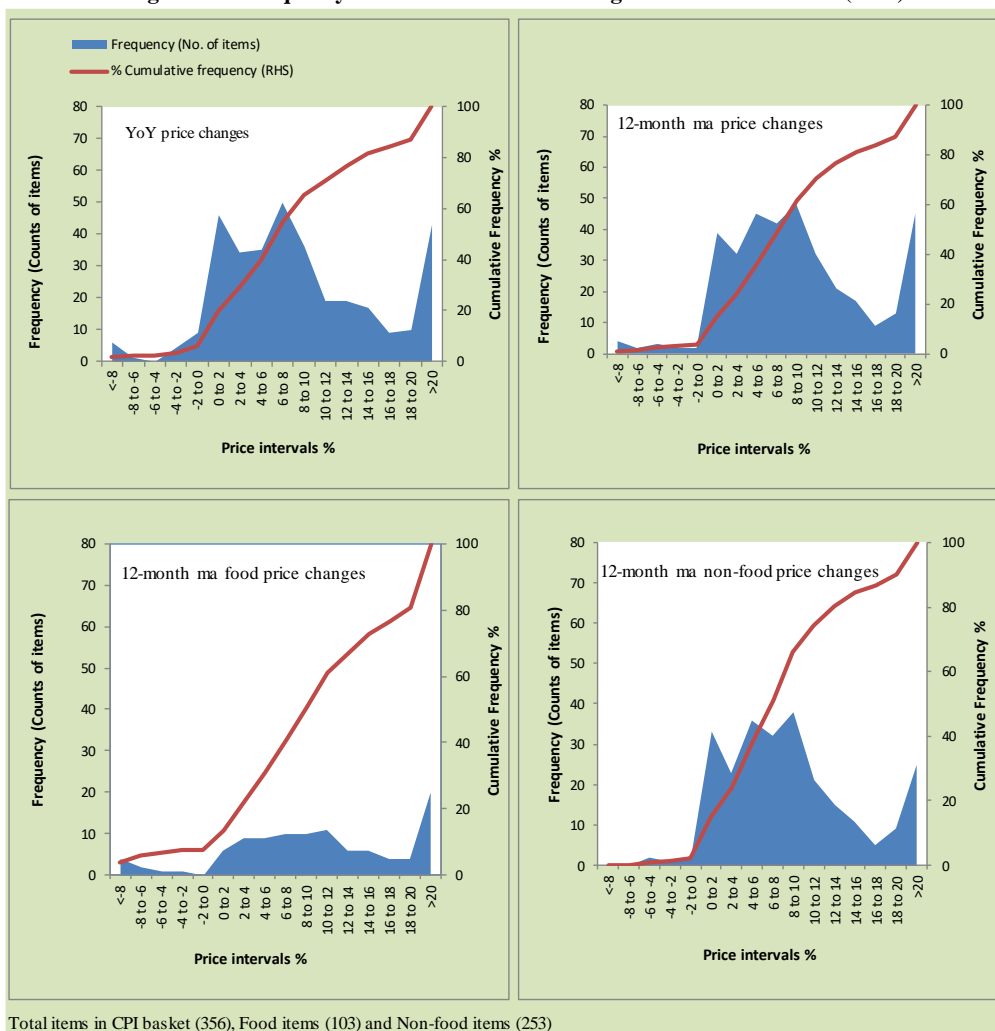


Figure A5: Frequency Distribution of Price Changes of Rural CPI Items (YoY)

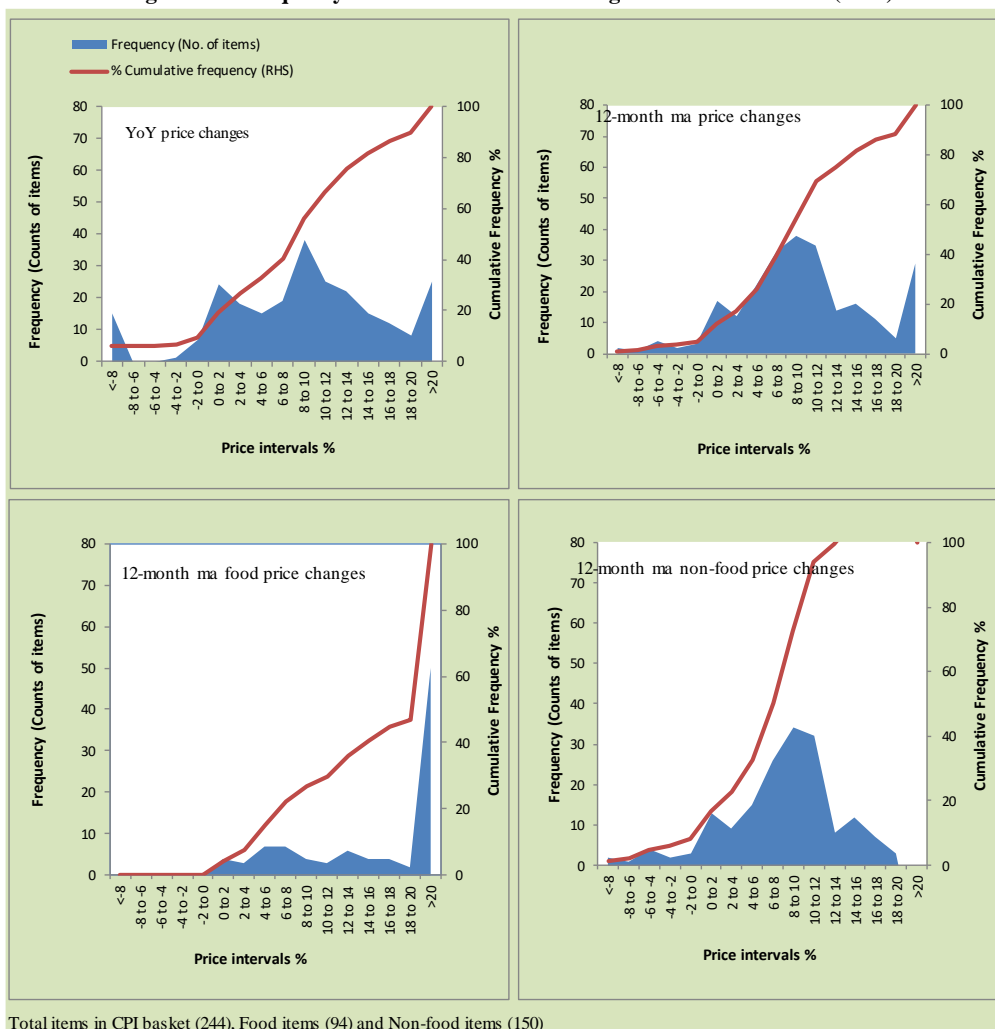
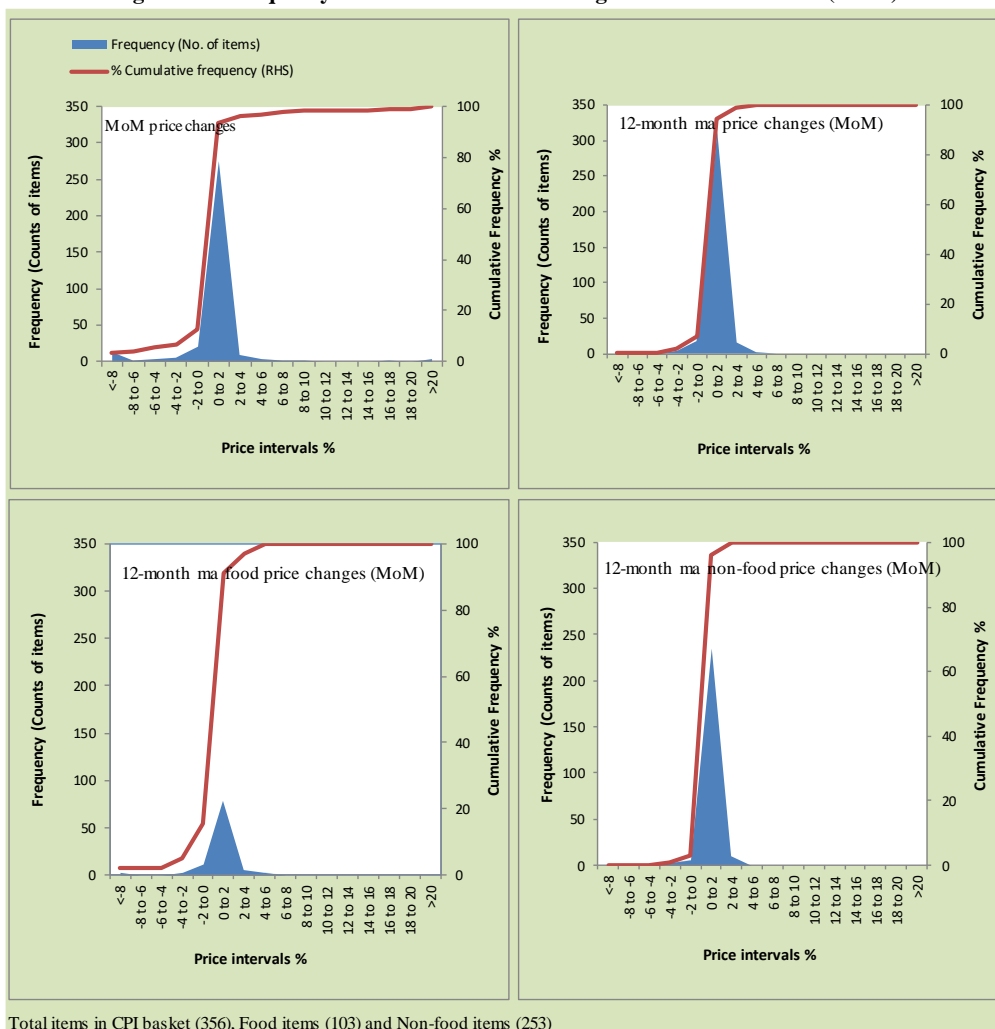


Figure A6: Frequency Distribution of Price Changes of Urban CPI Items (MoM)



Total items in CPI basket (356), Food items (103) and Non-food items (253)

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

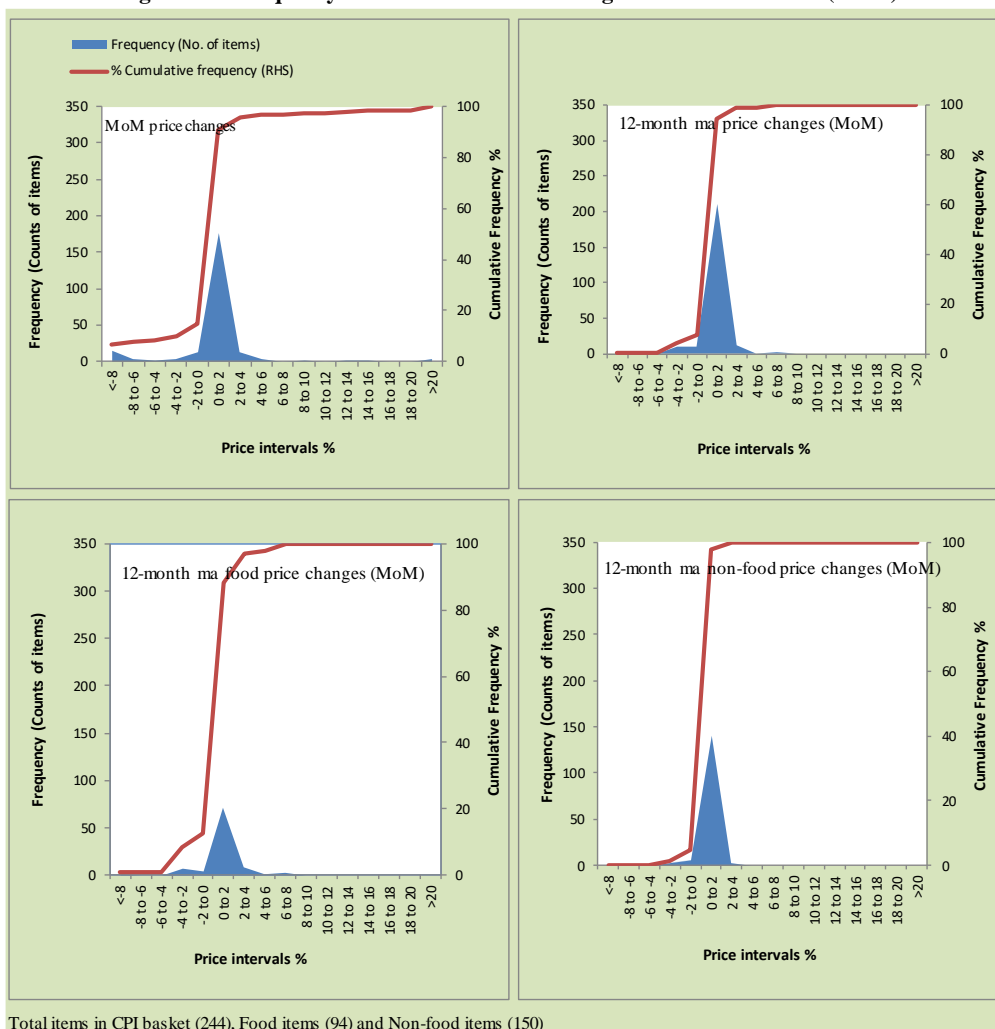
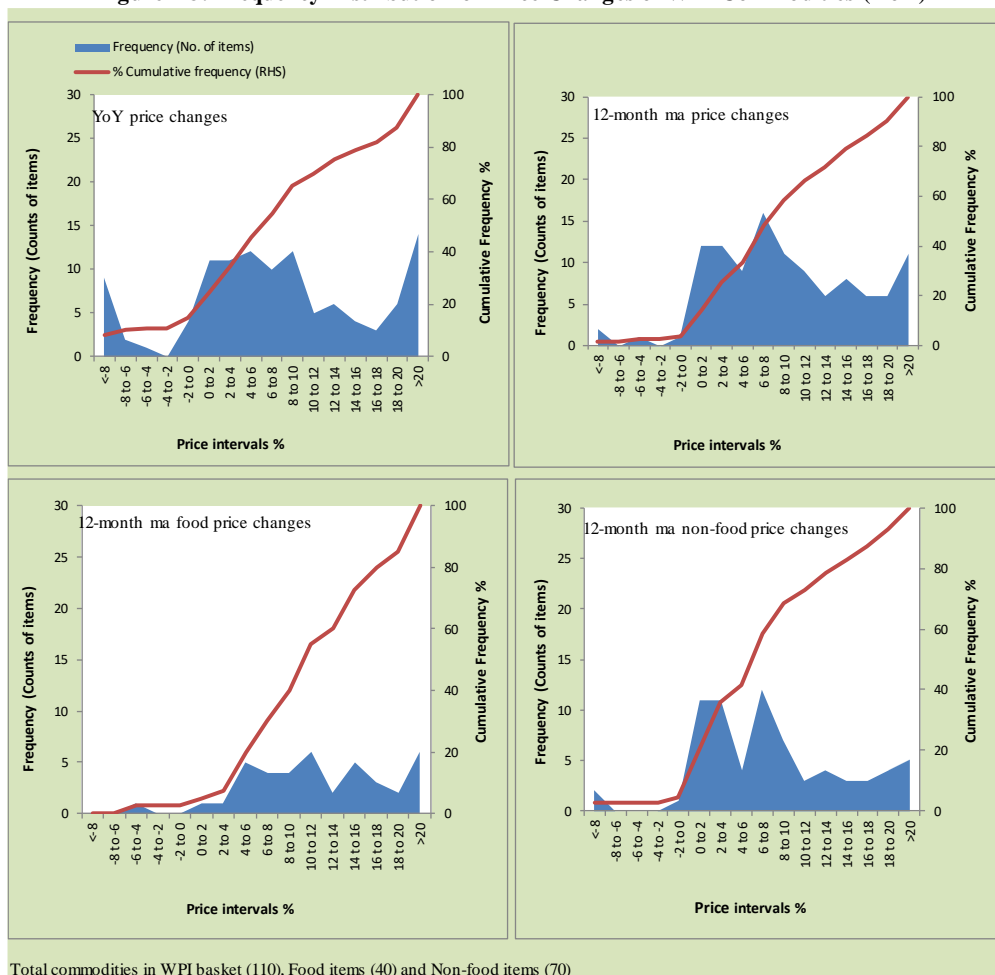


Figure A8: Frequency Distribution of Price Changes of WPI Commodities (YoY)



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

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

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:

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

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.