

Inflation Monitor

October 2020

(New Base: 2015-16)



State Bank of Pakistan

Statistics & DWH Department

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Contents

1.	Inflation in Brief.....	1
2.	Heat-maps of CPI inflation.....	3
3.	Trends in Inflation.....	7
4.	Movement in Price Indices (Moving Averages).....	8
5.	Movement in Price Indices (Month-on-Month).....	9
6.	Trends in Consumer Price Indices and Inflation.....	10
7.	Weighted Contribution.....	13
8.	Inflation Diffusion Index.....	16
9.	Domestic Commodity Prices.....	18
10.	Inflation in Global Context.....	19
11.	Global Commodity Prices.....	20
12.	Seasonal Adjustment in CPI.....	21
Annexure A.....		26
Table A1: National CPI Inflation by Groups (YoY and MoM in percent).....		26
Table A2: Urban CPI Inflation by Groups (YoY and MoM in percent).....		26
Table A3: Rural CPI Inflation by Groups (YoY and MoM in percent).....		27
Table A4: Top Ten Contributors to Urban CPI Inflation (YoY) in October 2020.....		28
Table A5: Top Ten Contributors to Urban CPI Inflation (MoM) in October 2020.....		29
Table A6: Top and Bottom Fifteen Contributors to Urban CPI Inflation (YoY) in October 2020.....		30
Table A7: Top and Bottom Fifteen Contributors to Urban CPI Inflation (MoM) in October 2020.....		31
Table A8: Top and Bottom Fifteen Contributors to MoM Urban CPI Food Inflation in October 2020.....		32
Table A9: Top and Bottom Fifteen Contributors to MoM Urban CPI Non-food Inflation in October 2020.....		33
Table A10: Top Ten Contributors to Rural CPI Inflation (YoY) in October 2020.....		34
Table A11: Top Ten Contributors to Rural CPI Inflation (MoM) in October 2020.....		35
Table A12: Top and Bottom Fifteen Contributors to Rural CPI Inflation (YoY) in October 2020.....		36
Table A13: Top and Bottom Fifteen Contributors to Rural CPI Inflation (MoM) in October 2020.....		37
Table A14: Top and Bottom Fifteen Contributors to MoM Rural CPI Food Inflation in October 2020.....		38
Table A15: Top and Bottom Fifteen Contributors to MoM Rural CPI Non-food Inflation in October 2020.....		39
Table A16: Distribution of Price Changes (YoY) - Selected Urban CPI Items: October 2020.....		40
Table A17: Distribution of Price Changes (YoY) - Selected Rural CPI Items: October 2020.....		41
Table A18: Distribution of Price Changes (YoY) - WPI Items: October 2020.....		42

Inflation Monitor, October 2020

Table A19: International Commodity Prices/Indices	43
Table A20: National CPI Data Series Original and Seasonally Adjusted.....	44
Table A21: Urban CPI Data Series Original and Seasonally Adjusted	45
Table A22: Rural CPI Data Series Original and Seasonally Adjusted	46
Table A23: National CPI Monthly & Average Seasonal Factors	47
Table A24: Urban CPI Monthly & Average Seasonal Factors.....	47
Table A25: Rural CPI Monthly & Average Seasonal Factors	48
Table A26: National CPI (Month-on-Month) Original & Seasonally Adjusted	49
Table A27: Urban CPI (Month-on-Month) Original & Seasonally Adjusted Series	50
Table A28: Rural CPI (Month-on-Month) Original & Seasonally Adjusted.....	51
Figure A1: National CPI Non-food Inflation (YoY, 12mma, MoM in percent).....	52
Figure A2: Urban CPI Non-food Inflation (YoY, 12mma, MoM in percent).....	53
Figure A3: Rural CPI Non-food Inflation (YoY, 12mma, MoM in percent).....	54
Figure A4: Frequency Distribution of Price Changes of Urban CPI Items (YoY)	55
Figure A5: Frequency Distribution of Price Changes of Rural CPI Items (YoY)	56
Figure A6: Frequency Distribution of Price Changes of Urban CPI Items (MoM)	57
Figure A7: Frequency Distribution of Price Changes of Rural CPI Items (MoM)	58
Figure A8: Frequency Distribution of Price Changes of WPI Commodities (YoY).....	59
Annexure B	60
Technical Notes, Definitions and Methodologies	60
a) Technical Notes	60
b) Methodology for Estimating Inflation Diffusion Index for Pakistan	62

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Review

1. Inflation in Brief

- a) National CPI inflation (2015-16=100) is recorded at 8.9 percent on year-on-year basis in October 2020 as compared to 9.0 percent in the previous month and 11.0 percent during the corresponding month of last year.
- b) National CPI inflation on month-on-month basis is recorded at 1.7 percent in October 2020 as compared to 1.5 percent in the previous month and 1.8 percent during the corresponding month of last year. Seasonally adjusted month-on-month CPI inflation is recorded at 0.99 percent in October 2020 compared to 1.41 percent in the previous month.
- c) Urban CPI inflation (2015-16=100) is recorded at 7.3 percent on year-on-year basis in October 2020 as compared to 7.7 percent in the previous month and 10.9 percent during the corresponding month of last year.
- d) Urban CPI inflation on month-on-month basis is recorded at 1.3 percent in October 2020 and was at same level compared to previous month and 1.6 percent during corresponding month of last year. Seasonally adjusted month-on-month Urban CPI inflation is recorded at 0.76 percent in October 2020 compared to 1.22 percent in the previous month.
- e) Rural CPI inflation (2015-16=100) is recorded at 11.3 percent on year-on-year basis in October 2020 as compared to 11.1 percent during the previous month. It was at same level during the corresponding month of last year.
- f) Rural CPI inflation on month-on-month basis is recorded at 2.4 percent in October 2020 as compared to 2.0 percent in the previous month and 2.2 percent during the corresponding month of last year. Seasonally adjusted month-on-month Rural CPI inflation is recorded at 1.33 percent in October 2020 compared to 1.77 percent in the previous month.

- g) Urban Core inflation (trimmed) on year-on-year basis is recorded at 6.5 percent in October 2020 as compared to 7.1 percent in the previous month and 8.9 percent during the corresponding month of last year.
- h) On month-on-month basis, the Urban Core inflation (trimmed) is recorded at 0.6 percent in October 2020 as compared to 0.4 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 9.5 percent in October 2020 as compared to 10.0 percent in the previous month and 9.4 percent during the corresponding month of last year.
- j) On month-on-month basis, the Rural Core inflation (trimmed) is recorded at 1.1 percent in October 2020 as compared to 0.9 percent in the previous month and 0.7 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 5.6 percent in October 2020 as compared to 5.5 percent in the previous month. It was 7.7 percent during the corresponding month of last year.
- l) Urban Core (NFNE) inflation on month-on-month basis recorded at 0.6 percent in October 2020 as compared to 0.3 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 7.6 percent in October 2020 as compared to 7.8 percent in the previous month and 8.6 percent during the corresponding month of last year.
- n) Rural Core (NFNE) inflation on month-on-month basis recorded at 0.6 percent in October 2020 as compared to 0.4 percent in the previous month and 0.7 percent during the corresponding month of last year.

- o) WPI inflation on year-on-year basis recorded at 5.1 percent in October 2020 as compared to 4.3 percent in the previous month and 13.3 percent during the corresponding month of last year.
- p) WPI inflation on month-on-month basis recorded at 2.9 percent in October 2020 as compared to 1.0 percent in the previous month. It was 2.0 percent in the corresponding month of last year.
- q) SPI inflation on year-on-year basis recorded at 9.7 percent in October 2020 as compared to 9.0 percent in the previous month. It was 16.3 percent in the corresponding month of last year.
- r) SPI inflation on month-on-month basis recorded at 2.8 percent in October 2020 as compared to 1.8 percent in the previous month. It was 2.2 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.

		Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
Headline	National	11.0	12.7	12.6	14.6	12.4	10.2	8.5	8.2	8.6	9.3	8.2	9.0	8.9
	Urban	10.9	12.1	12.0	13.4	11.2	9.3	7.7	7.3	7.6	7.8	7.1	7.7	7.3
	Rural	11.3	13.6	13.6	16.3	14.2	11.7	9.8	9.7	10.0	11.6	9.9	11.1	11.3
Food	Urban	13.7	16.6	16.7	19.5	15.2	13.0	10.4	10.6	12.9	15.1	11.3	12.4	13.9
	Rural	14.6	19.3	19.7	23.8	19.7	15.5	12.9	13.7	15.2	17.8	13.5	15.8	17.7
Core	Urban	7.7	7.5	7.5	7.9	8.0	7.4	6.4	6.3	6.5	5.3	5.6	5.5	5.6
	Rural	8.6	8.4	8.1	9.0	9.4	9.4	8.5	8.4	8.8	7.8	7.6	7.8	7.6

Source: Pakistan Bureau of Statistics and SBP staff estimates

Key: <6 8.5 >10

Inflation Monitor, October 2020

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

		Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
Headline	National	1.8	1.3	-0.3	2.0	-1.0	0.0	-0.8	0.3	0.8	2.5	0.6	1.5	1.7
	Urban	1.6	1.0	-0.4	1.7	-1.1	0.1	-0.7	0.3	0.7	2.2	0.8	1.3	1.3
	Rural	2.2	1.9	-0.3	2.4	-1.0	-0.1	-1.1	0.3	1.0	3.0	0.4	2.0	2.4
Food	Urban	1.4	2.4	-1.7	2.7	-1.4	0.6	-1.0	1.5	1.8	3.0	-0.3	3.0	2.8
	Rural	2.6	3.4	-1.1	3.4	-1.6	-0.3	-1.7	1.4	2.0	4.0	-0.9	3.8	4.3
Core	Urban	0.5	0.3	0.4	1.1	0.2	0.3	0.2	0.4	0.4	0.6	0.7	0.3	0.6
	Rural	0.7	0.5	0.3	1.0	0.5	0.6	0.3	0.4	0.7	1.1	0.8	0.4	0.6

Source: Pakistan Bureau of Statistics and SBP staff estimates

Key: <0.00 0.75 >1.50

Heat-map of National CPI inflation (YoY)

	Weights	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
National	100.00	11.0	12.7	12.6	14.6	12.4	10.2	8.5	8.2	8.6	9.3	8.2	9.0	8.9
Food and non-alcoholic Beverages	34.58	15.0	19.4	19.7	23.7	18.4	14.7	11.7	12.2	14.6	17.8	12.9	14.7	16.6
Alcoholic Beverages, Tobacco	1.02	20.3	18.7	18.3	17.9	18.5	18.6	19.6	19.5	14.2	5.0	5.8	5.9	6.0
Clothing and footwear	8.60	9.3	9.4	9.7	9.6	10.1	11.0	10.2	10.3	11.0	10.3	9.2	9.1	9.0
Housing, water, Elec., Gas and other fuels	23.63	7.2	8.8	8.5	9.6	6.8	4.9	5.1	6.4	5.4	4.2	6.0	6.1	2.7
Furnishing and household equipment maintenance	4.10	11.3	10.8	10.4	10.1	10.0	10.1	9.0	8.7	8.8	7.8	7.5	7.9	8.0
Health	2.79	12.2	11.4	11.3	11.8	12.0	12.4	10.5	9.8	9.3	7.8	7.7	8.3	7.8
Transport	5.91	16.5	14.0	14.7	18.6	19.2	11.5	3.4	-7.5	-10.2	-4.5	-3.4	-1.5	-1.5
Communication	2.21	4.0	4.0	4.0	4.0	3.9	3.9	1.7	1.6	1.6	0.3	0.3	0.3	0.3
Recreation and culture	1.59	7.4	6.8	6.8	6.5	6.6	5.9	5.1	4.9	4.8	3.8	3.5	3.9	3.9
Education	3.79	6.0	6.1	6.0	7.3	7.4	4.5	3.2	2.0	2.0	1.1	1.0	1.0	1.4
Restaurants and hotels	6.92	6.0	6.4	6.1	7.4	8.7	8.7	8.5	8.6	9.0	7.5	8.0	8.2	8.9
Misc. goods and services	4.87	12.5	11.8	10.7	11.4	11.4	11.8	11.9	11.9	11.6	11.7	13.6	12.2	11.6

Source: Pakistan Bureau of Statistics and SBP staff estimates

Key: <6 8.5 >10

Heat-map of Urban CPI inflation (YoY)

	Weights	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
Urban	100.00	10.9	12.1	12.0	13.4	11.2	9.3	7.7	7.3	7.6	7.8	7.1	7.7	7.3
Food and non-alcoholic Beverages	30.42	15.0	18.6	18.8	22.0	16.4	13.7	10.7	10.9	13.8	16.9	11.9	13.3	14.9
Alcoholic Beverages, Tobacco	0.85	18.5	16.7	16.6	16.8	17.7	17.8	18.8	19.0	13.3	4.7	5.5	5.7	6.2
Clothing and footwear	8.01	9.0	9.1	9.6	9.0	9.6	9.9	9.5	9.5	10.1	9.4	8.0	8.0	8.0
Housing, water, Elec., Gas and other fuels	27.03	8.2	9.6	9.4	9.7	6.9	5.1	5.1	6.5	5.6	3.6	5.4	5.5	2.3
Furnishing and household equipment maintenance	4.09	11.6	11.2	11.0	10.4	10.0	9.8	8.3	7.7	7.7	6.3	6.2	6.3	6.6
Health	2.31	11.2	10.5	10.9	11.5	11.7	12.2	9.4	8.7	8.4	5.9	6.7	7.2	7.3
Transport	6.14	17.5	15.0	15.6	19.4	19.9	12.2	4.1	-6.5	-9.5	-4.8	-3.7	-1.6	-1.7
Communication	2.35	5.2	5.1	5.3	5.3	5.3	5.1	2.3	2.2	2.1	0.4	0.4	0.3	0.3
Recreation and culture	1.73	6.7	6.5	6.4	6.1	6.1	5.6	4.9	4.6	4.4	3.1	2.7	2.9	2.9
Education	4.88	6.2	6.3	6.3	7.5	7.5	4.5	3.4	1.9	1.9	1.1	1.0	0.9	1.2
Restaurants and hotels	7.41	4.9	5.2	4.9	6.5	7.7	7.5	7.4	7.2	7.7	6.7	8.2	8.2	8.8
Misc. goods and services	4.77	12.0	11.0	10.1	10.7	10.1	10.6	11.0	10.9	10.6	10.4	12.6	10.5	9.7

Source: Pakistan Bureau of Statistics and SBP staff estimates

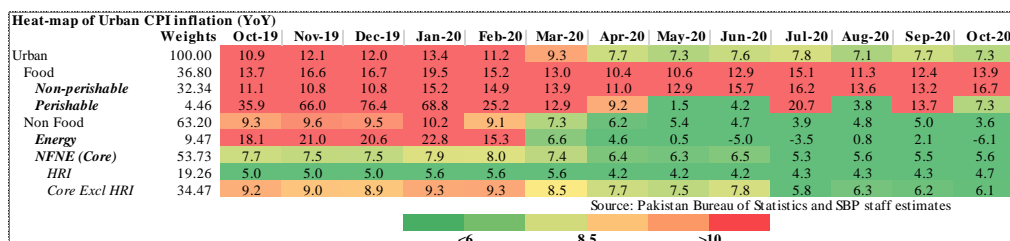
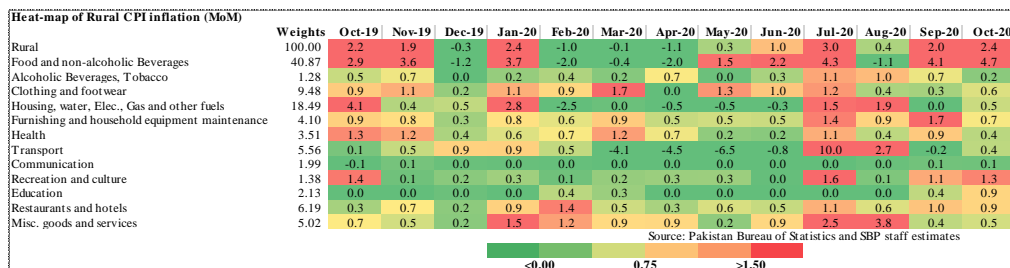
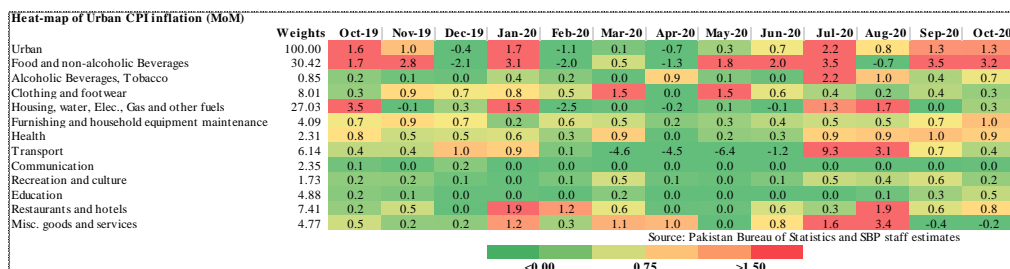
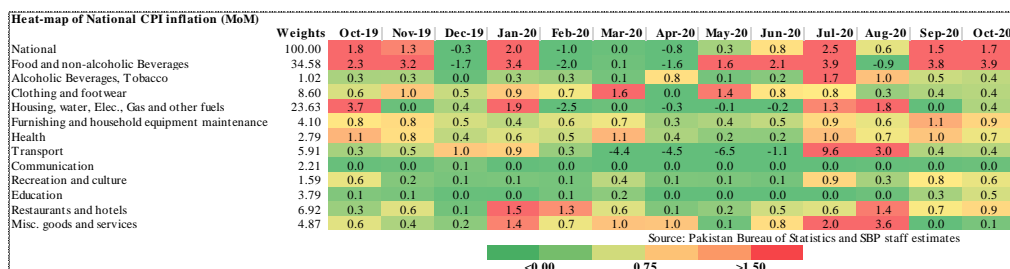
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Heat-map of Rural CPI inflation (YoY)

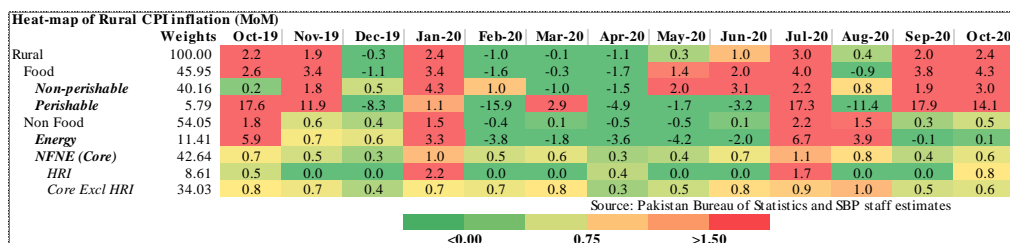
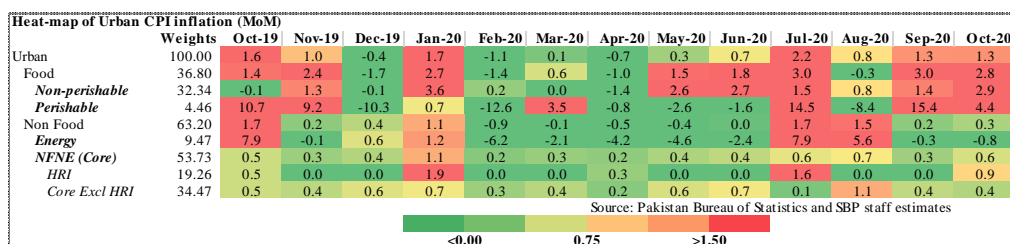
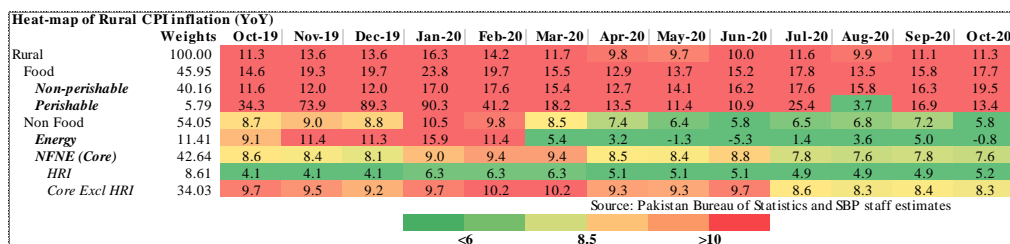
	Weights	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
Rural	100.00	11.3	13.6	13.6	16.3	14.2	11.7	9.8	9.7	10.0	11.6	9.9	11.1	11.3
Food and non-alcoholic Beverages	40.87	15.1	20.3	20.8	25.5	20.6	15.8	12.8	13.7	15.5	18.7	14.0	16.4	18.4
Alcoholic Beverages, Tobacco	1.28	22.4	21.0	20.2	19.2	19.4	19.5	20.4	20.1	15.3	5.4	6.1	6.1	5.7
Clothing and footwear	9.48	9.7	9.8	9.9	10.2	10.8	12.3	11.0	11.4	12.2	11.5	10.6	10.5	10.1
Housing, water, Elec., Gas and other fuels	18.49	4.9	6.9	6.6	9.4	6.6	4.6	5.2	6.0	4.9	5.5	7.2	7.4	3.7
Furnishing and household equipment maintenance	4.10	10.9	10.2	9.6	9.7	9.9	10.6	10.1	10.2	10.4	10.1	9.5	10.3	10.1
Health	3.51	13.1	12.3	11.7	12.1	12.4	12.6	11.6	10.9	10.1	9.7	8.7	9.3	8.3
Transport	5.56	14.7	12.2	13.1	17.2	18.0	10.2	2.3	-9.0	-11.5	-3.8	-3.0	-1.4	-1.1
Communication	1.99	2.0	1.9	1.7	1.7	1.6	1.6	0.8	0.7	0.6	0.3	0.2	0.2	0.4
Recreation and culture	1.38	8.9	7.4	7.5	7.3	7.3	6.5	5.4	5.5	5.5	5.2	5.0	5.8	5.7
Education	2.13	5.3	5.3	5.0	6.7	7.1	4.5	2.5	2.4	2.4	1.2	0.7	1.2	2.1
Restaurants and hotels	6.19	8.0	8.5	8.3	8.9	10.3	10.8	10.4	11.1	11.3	9.0	7.5	8.4	9.0
Misc. goods and services	5.02	13.2	12.9	11.6	12.5	13.4	13.6	13.2	13.5	13.2	13.8	15.0	14.5	14.3

Source: Pakistan Bureau of Statistics and SBP staff estimates

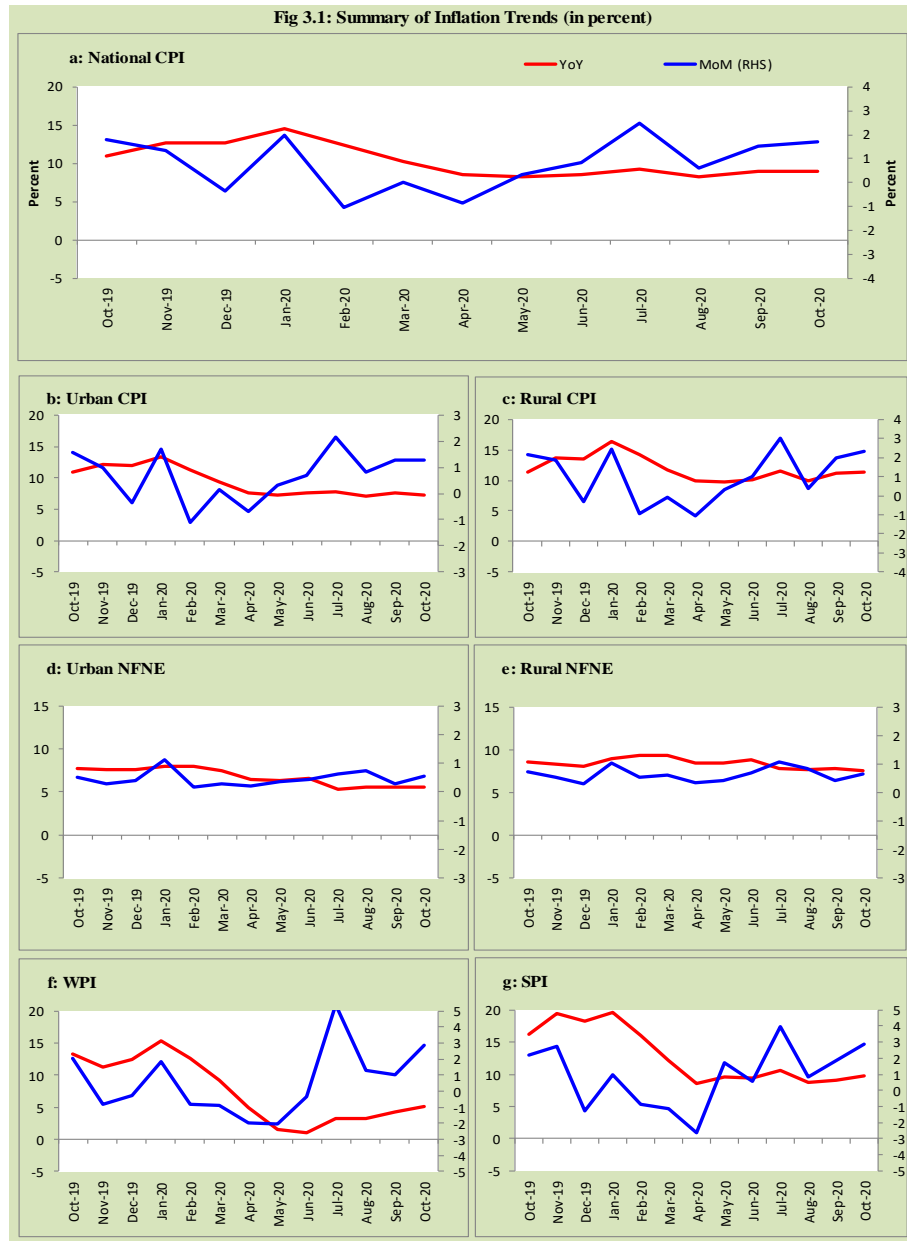
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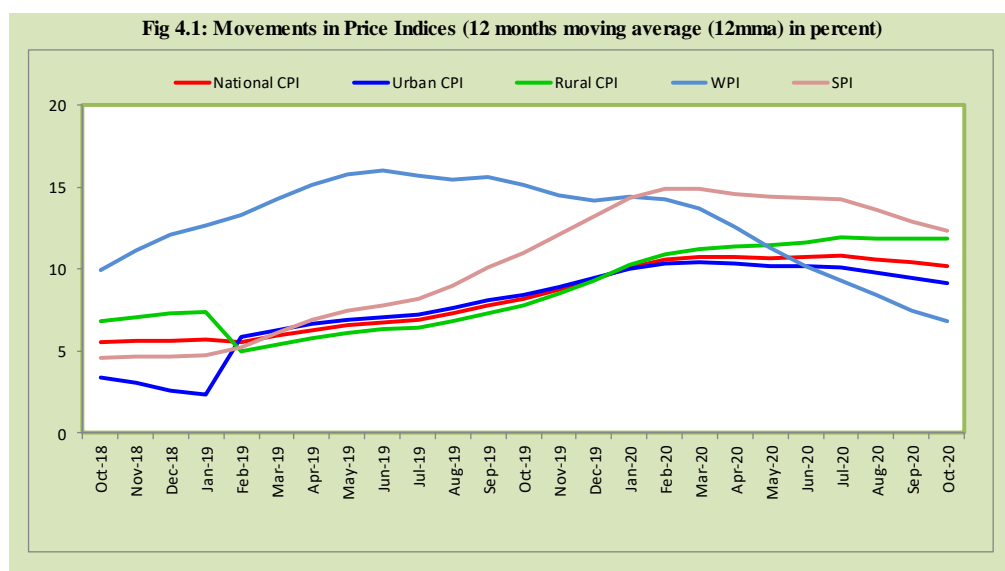
Inflation Monitor, October 2020



3. Trends in Inflation



4. Movement in Price Indices (Moving Averages)



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

Fig 5.1: Movements in Price Indices (MoM in percent)

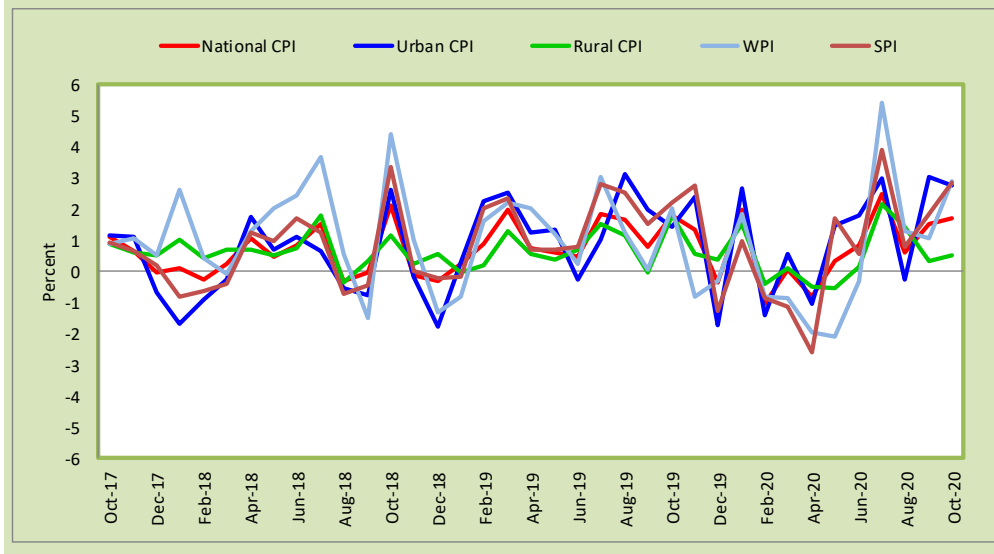
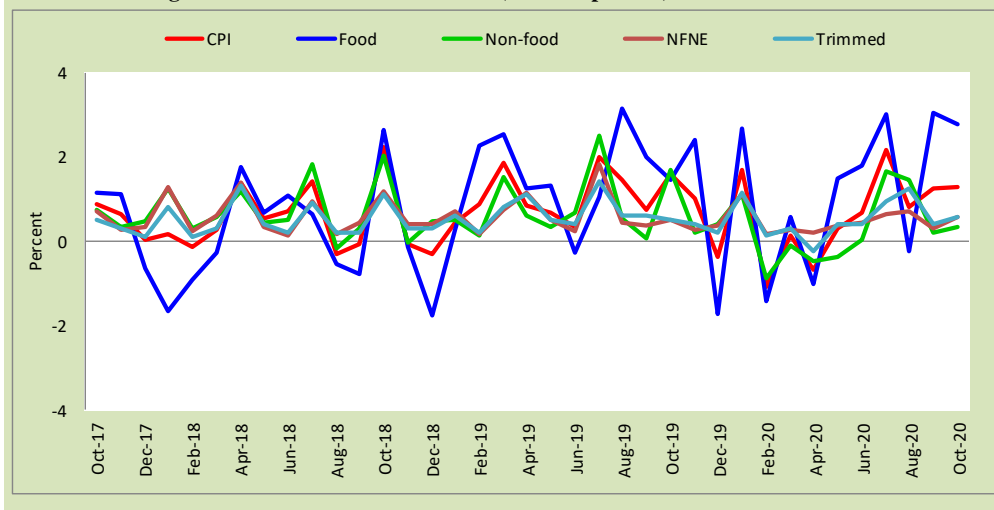
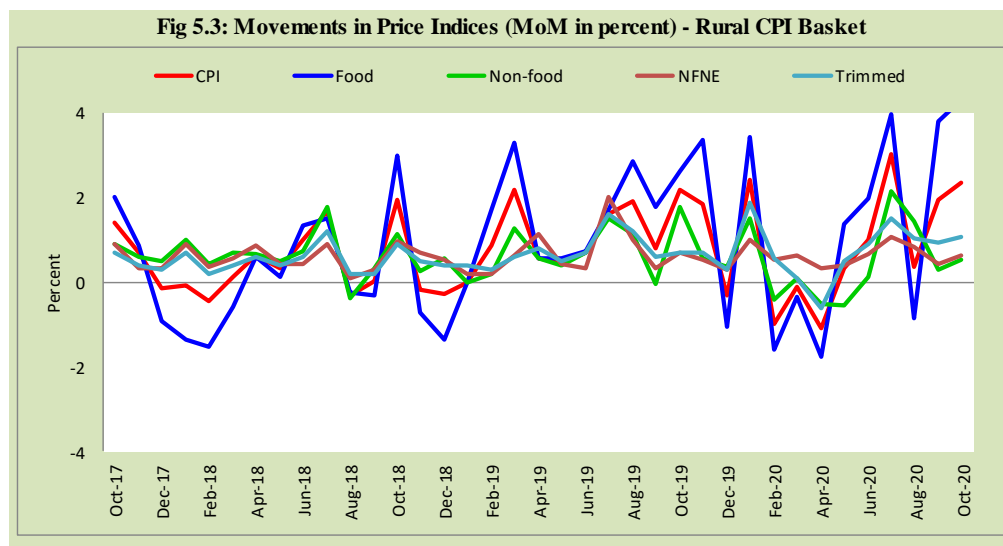


Fig 5.2: Movements in Price Indices (MoM in percent) - Urban CPI Basket

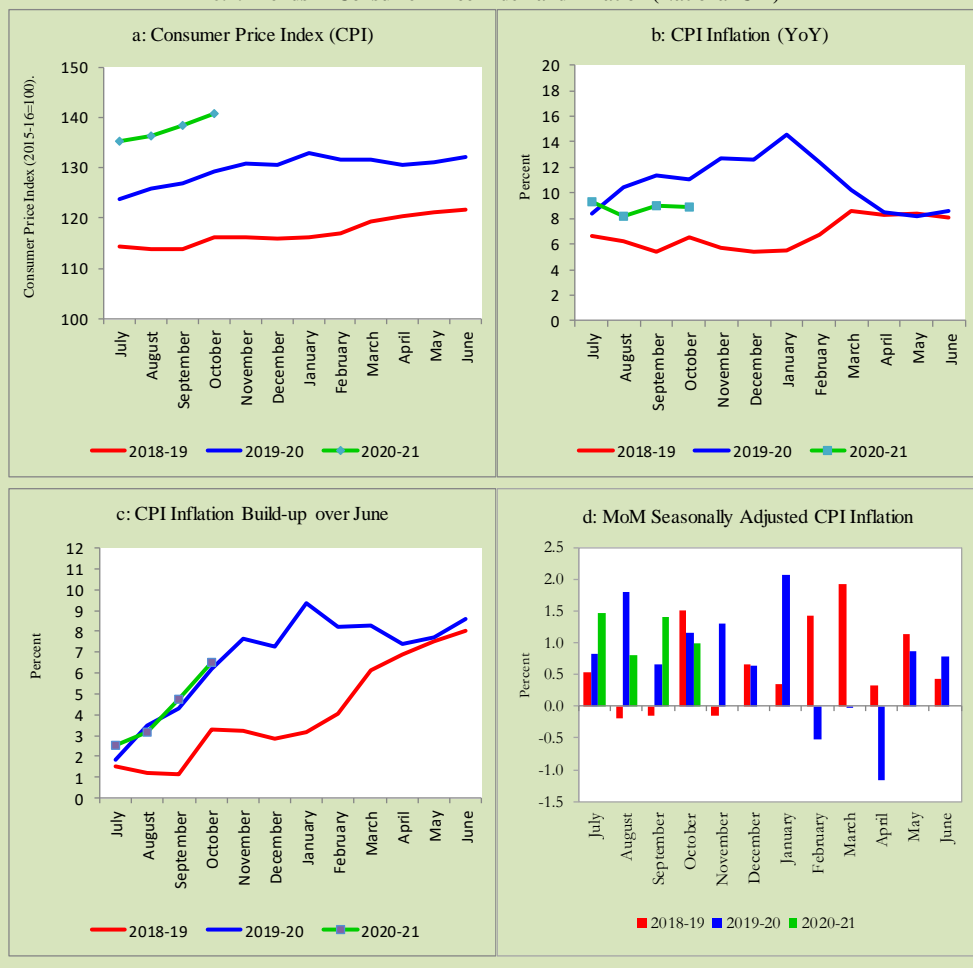




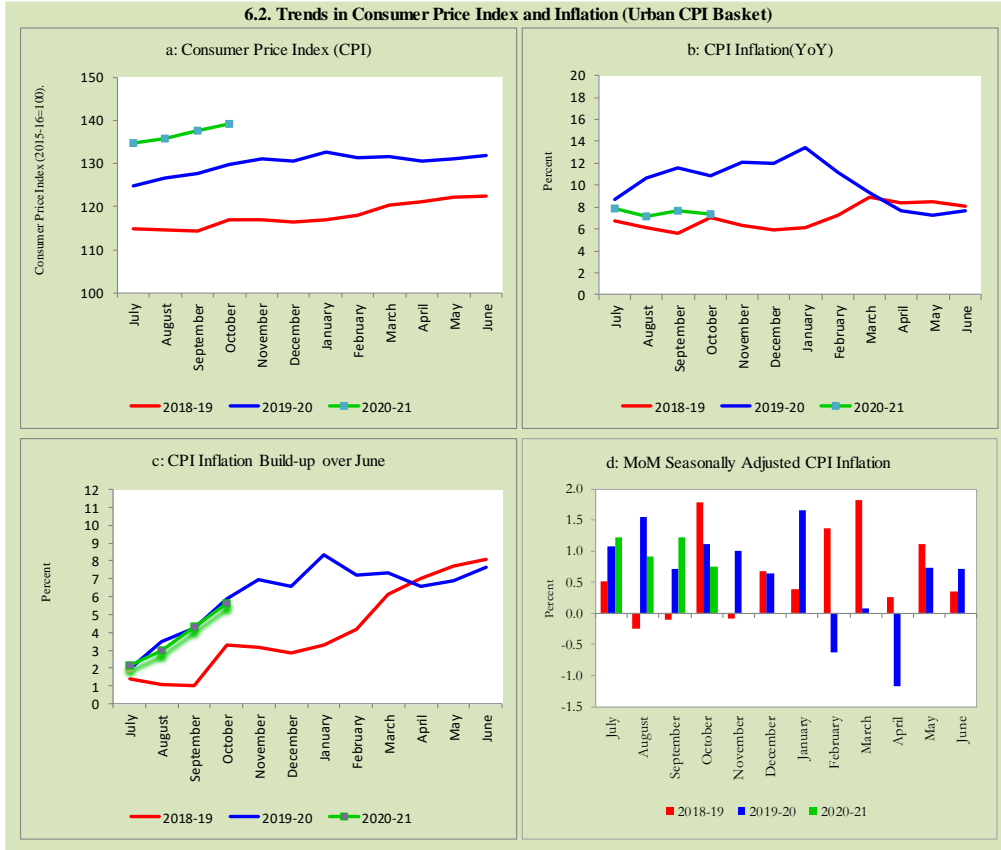
6. Trends in Consumer Price Indices and Inflation

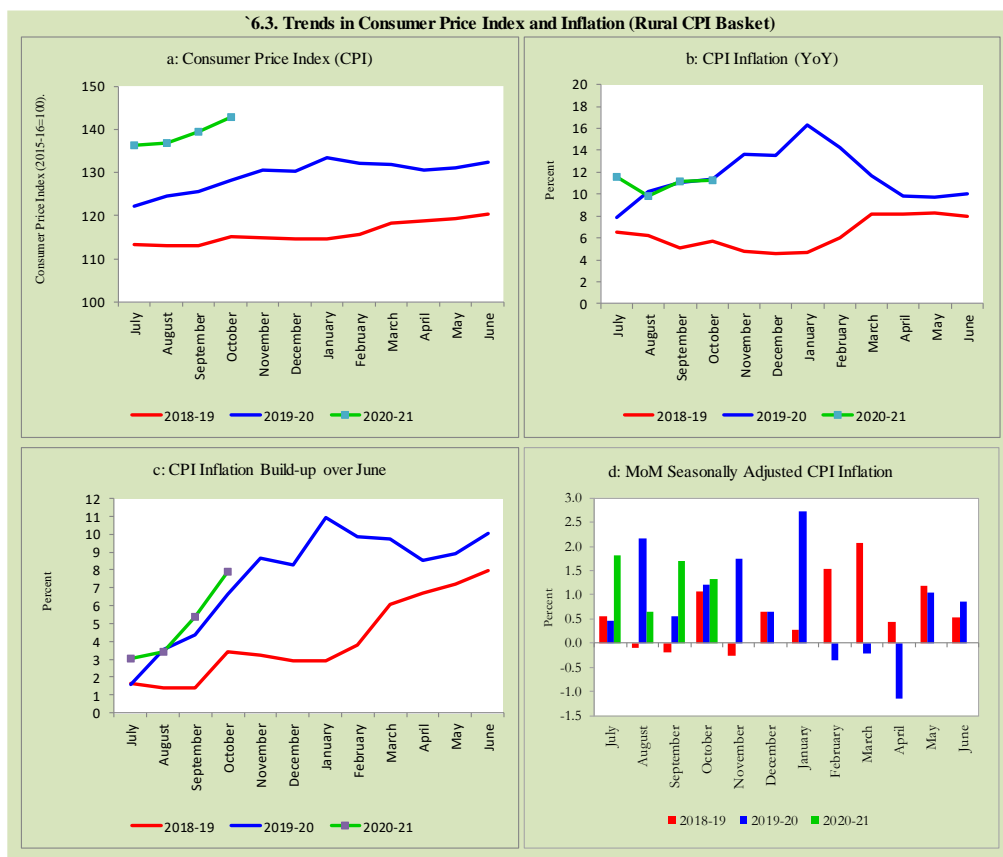
Monthly Consumer Price Indices, YoY growth rates and inflation build up over June along with seasonally adjusted (MoM) growth rates in CPI (National, Urban and Rural) is summarized in the following graphs (Figure 6.1 to 6.3).

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 increased to 68.7 percent during October 2020 from 58.8 percent in previous month. It was 44.7 percent during corresponding month of last year. The weighted contribution of non-food group decreased to 31.3 percent in October 2020 from 41.2 percent in previous month. Non-food group was 55.4 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

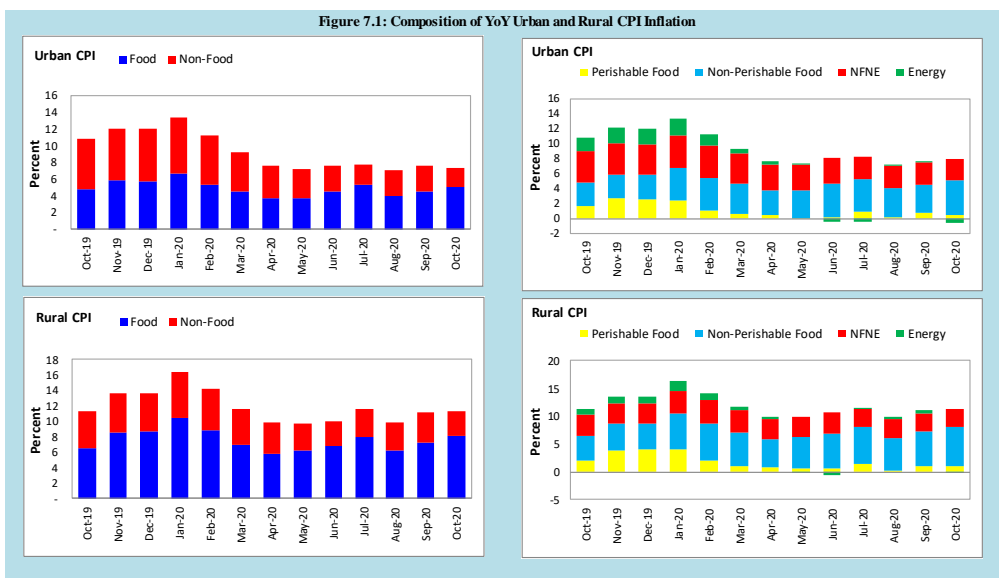
HRI) in the overall inflation for urban basket. Figure 7.1 provides a graphical presentation of composition of YoY urban CPI inflation cascaded in food group and non-food groups and their respective sub-indexes.

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
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
Jun-20	100	60.0	2.6	57.4	40.0	-6.5	46.4	35.7	10.8
Jul-20	100	68.0	12.3	55.7	32.1	-4.7	36.7	26.0	10.7
Aug-20	100	56.8	2.6	54.2	43.2	1.2	42.0	30.5	11.6
Sep-20	100	58.8	9.1	49.7	41.2	2.8	38.4	27.8	10.7
Oct-20	100	68.7	5.5	63.2	31.3	-8.9	40.2	28.1	12.0

Also, for rural basket, the weighted contribution of food group in the overall rural CPI inflation increased to 72.2 percent during October 2020 from 65.2 percent in previous month. It was 57.8 percent during corresponding month of last year. On the other hand, the weighted contribution of non-food group decreased to 27.8 percent in October 2020 from 34.8 percent in previous month. Non-food group was 42.2 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	i
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
Jun-20	100	68.2	6.3	61.9	31.8	-6.2	38.0	33.4	4.5
Jul-20	100	69.3	12.9	56.4	30.7	1.4	29.3	25.5	3.8
Aug-20	100	62.4	2.3	60.1	37.6	4.2	33.4	29.0	4.4
Sep-20	100	65.2	9.7	55.5	34.8	5.0	29.9	26.0	3.8
Oct-20	100	72.2	8.8	63.4	27.8	-0.8	28.4	24.7	3.9

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

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
General	61.8	55.3	43.5	56.2	52.5	45.8	19.9	30.1	41.0	55.3	55.3	63.2	57.0
Food & Non-Alcoholic Beverages	67.8	45.6	35.6	66.7	35.6	31.1	26.7	4.4	34.4	42.2	22.2	62.2	51.1
Alcoholic Beverages & Tobacco	100.0	100.0	66.7	100.0	66.7	66.7	100.0	66.7	66.7	66.7	100.0	66.7	33.3
Clothing & Footwear	72.5	80.0	72.5	75.0	75.0	67.5	10.0	67.5	57.5	67.5	65.0	72.5	75.0
Housing, Water, Elect, Gas & other Fuels	55.2	24.1	20.7	3.4	6.9	27.6	24.1	17.2	10.3	27.6	41.4	6.9	6.9
Furnishing & Household Equip. Maintenance etc.	88.1	95.2	76.2	71.4	92.9	64.3	19.0	61.9	90.5	81.0	95.2	88.1	85.7
Health	64.5	64.5	54.8	71.0	77.4	67.7	35.5	38.7	38.7	74.2	83.9	77.4	64.5
Transport	37.5	37.5	46.9	40.6	50.0	31.3	-6.3	15.6	3.1	46.9	50.0	40.6	40.6
Communication	20.0	20.0	20.0	20.0	20.0	20.0	0.0	20.0	-20.0	20.0	0.0	20.0	40.0
Recreation & Culture	24.0	32.0	20.0	20.0	28.0	20.0	12.0	20.0	24.0	60.0	52.0	68.0	48.0
Education	6.3	25.0	12.5	6.3	0.0	31.3	0.0	0.0	0.0	0.0	18.8	68.8	43.8
Restaurant & Hotels	78.6	71.4	28.6	71.4	85.7	64.3	14.3	57.1	71.4	64.3	78.6	78.6	85.7
Miscellaneous	79.3	65.5	34.5	82.8	75.9	69.0	37.9	41.4	72.4	86.2	93.1	75.9	75.9
NFNE	58.3	63.0	48.1	55.3	62.6	53.2	19.6	40.4	43.8	60.9	66.4	68.5	63.8

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

	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
General	64.3	50.8	36.9	56.6	48.0	41.8	23.4	32.4	28.7	60.7	49.2	55.3	58.2
Food & Non-Alcoholic Beverages	69.6	46.8	25.3	67.1	32.9	16.5	25.3	8.9	17.7	48.1	15.2	51.9	54.4
Alcoholic Beverages & Tobacco	100.0	80.0	0.0	60.0	100.0	60.0	60.0	20.0	60.0	100.0	100.0	80.0	60.0
Clothing & Footwear	77.8	59.3	48.1	77.8	85.2	70.4	0.0	85.2	48.1	85.2	66.7	59.3	66.7
Housing, Water, Elect, Gas & other Fuels	82.6	34.8	39.1	8.7	0.0	39.1	34.8	17.4	0.0	52.2	65.2	26.1	26.1
Furnishing & Household Equip. Maintenance etc.	84.6	80.8	57.7	69.2	73.1	80.8	23.1	53.8	65.4	88.5	88.5	69.2	84.6
Health	50.0	78.6	57.1	42.9	42.9	71.4	42.9	50.0	35.7	57.1	50.0	85.7	42.9
Transport	37.5	43.8	25.0	43.8	43.8	12.5	-6.3	0.0	18.8	43.8	62.5	31.3	43.8
Communication	-20.0	20.0	20.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	20.0	20.0	20.0
Recreation & Culture	27.8	11.1	27.8	22.2	33.3	27.8	22.2	11.1	5.6	44.4	33.3	61.1	72.2
Education	0.0	0.0	20.0	0.0	80.0	40.0	0.0	0.0	0.0	0.0	0.0	60.0	100.0
Restaurant & Hotels	42.9	42.9	35.7	78.6	71.4	78.6	28.6	64.3	57.1	64.3	57.1	50.0	71.4
Miscellaneous	70.6	64.7	58.8	70.6	82.4	52.9	41.2	70.6	35.3	88.2	88.2	82.4	76.5
NFNE	58.1	55.1	44.9	52.2	58.1	55.9	24.3	50.0	36.0	66.2	62.5	64.0	64.7

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

9. Domestic Commodity Prices

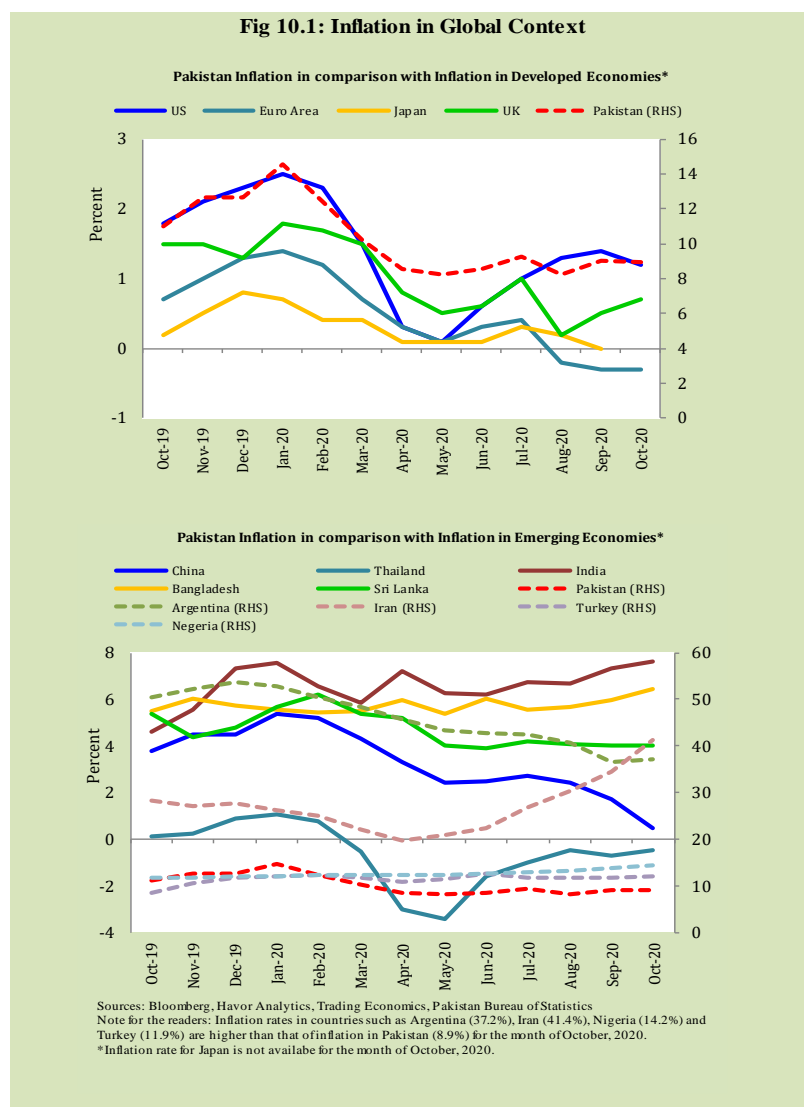
Inflation in domestic food commodities (YoY and MoM in percent) for selected essential food items covering both urban and rural CPI baskets is given in table 9.1.

Table 9.1 Inflation in Domestic Urban and Rural CPI Food Commodities (in percent) - October 2020						
S. No	Item	Unit	Urban CPI		Rural CPI	
			YoY	MoM	YoY	MoM
1	Wheat	10 Kg	52.2	8.4	51.1	5.5
2	Wheat Flour Bag	20 Kg	20.6	4.1	25.0	2.7
3	Rice Basmati Broken (Superior/Average Quality) *	1 Kg	6.0	0.5	15.4	2.1
4	Beef with Bone (Average Quality)	1 Kg	12.3	0.4	11.5	1.7
5	Mutton (Average Quality)	1 Kg	9.9	0.8	9.7	1.9
6	Chicken Farm Broiler (Live)	1 Kg	18.2	26.6	15.6	23.1
7	Milk Fresh (Un-Boiled)	1 Litre	12.5	0.2	7.7	0.6
8	Eggs Farm	Dozen	43.3	23.8	43.7	24.9
9	Vegetable Ghee Dalda/Habib Or Other Superior Quality 1 Kg Pouch	Each	15.3	0.9	18.1	1.1
10	Pulse Masoor (Washed)	1 Kg	19.9	0.8	30.5	3.0
11	Pulse Moong (Washed)	1 Kg	40.9	1.7	39.0	-2.9
12	Pulse Mash (Washed)	1 Kg	35.6	1.3	33.9	1.6
13	Pulse Gram	1 Kg	10.5	0.8	8.5	1.4
14	Potatoes	1 Kg	54.2	0.8	61.4	3.1
15	Onions	1 Kg	-8.4	39.1	-2.6	58.4
16	Tomatoes	1 Kg	66.9	48.4	104.0	65.0
17	Sugar Refined	1 Kg	33.0	4.6	33.4	4.9
18	Garlic (Lehsun)	1 Kg	-4.9	2.0	-14.1	2.1
19	Ginger (Adrak)	500 Gm	45.4	-15.2	57.8	-14.9
20	Tea Lipton Yellow Label 190 Gm Packet	Each	0.5	0.0	1.5	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.

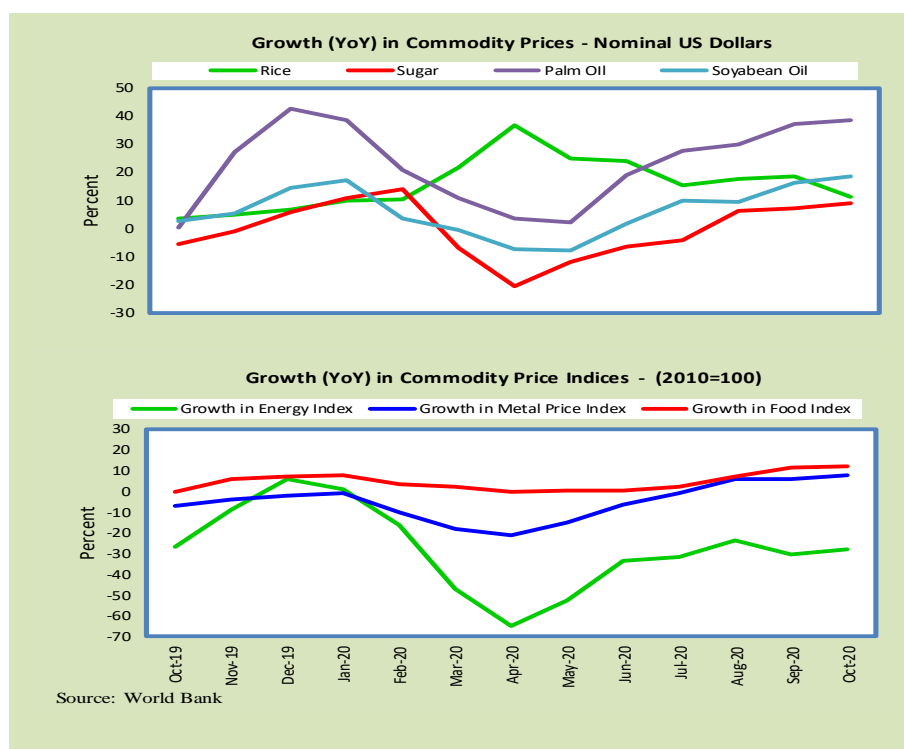


11. Global Commodity Prices

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	Oct-19		Sep-20		Oct-20	
	YoY	MoM	YoY	MoM	YoY	MoM
Food	-0.1	2.5	11.4	3.5	12.3	3.3
Metals	-6.9	-0.4	5.9	1.9	7.7	1.3
Energy	-26.8	-3.7	-30.8	-5.2	-27.8	0.5
Agricultural	-1.3	1.9	10.6	2.8	10.8	2.0
Cotton	-14.9	3.6	-0.7	1.2	1.3	5.7



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 October 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 on historical data and that the future data may not necessarily show the same seasonal pattern.

Fig. 12.1 (a) Seasonal Factors of National CPI

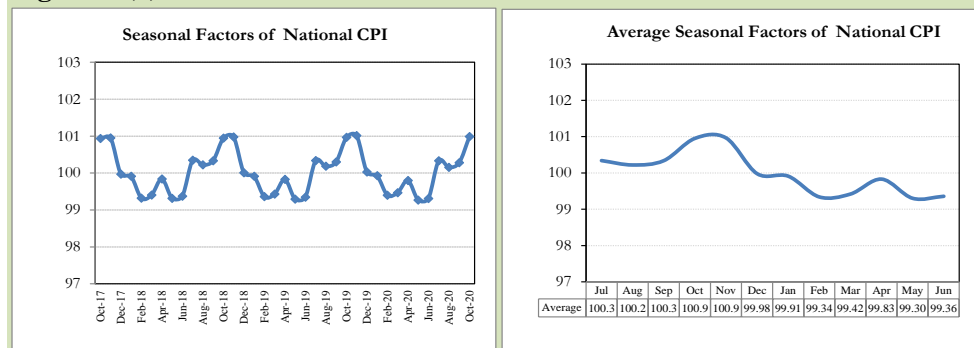


Fig. 12.1 (b) Seasonal Factors of Urban CPI

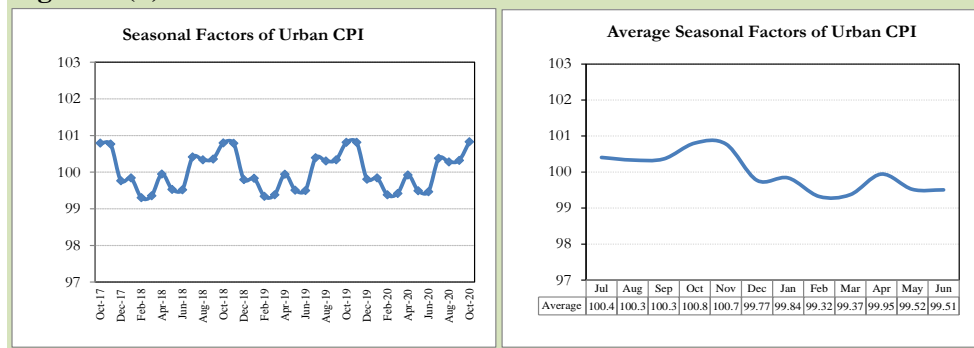
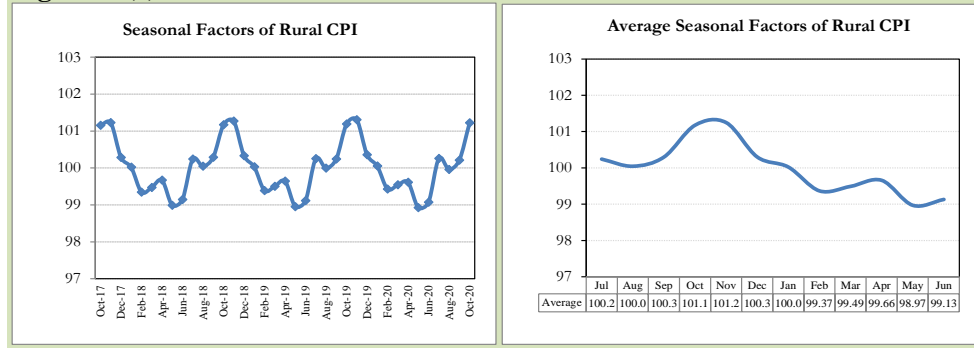


Fig. 12.1 (c) Seasonal Factors of Rural CPI



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

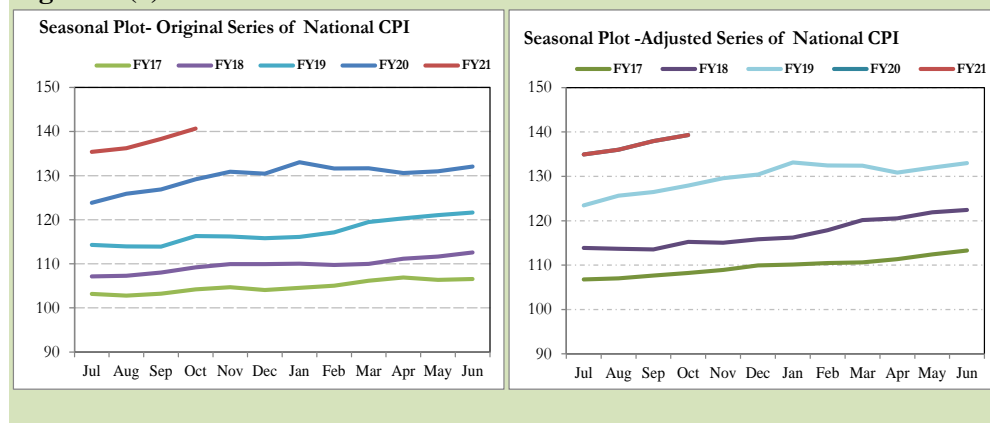


Fig. 12.2 (b) Seasonal Plots of Urban CPI

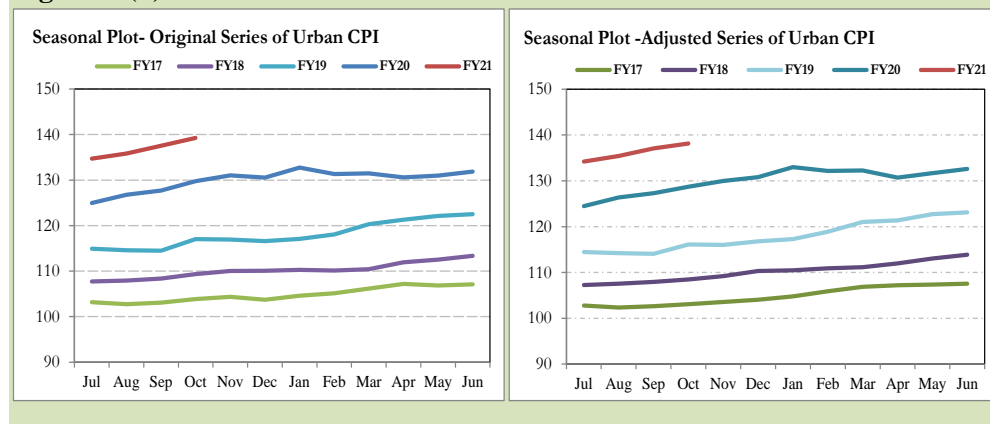
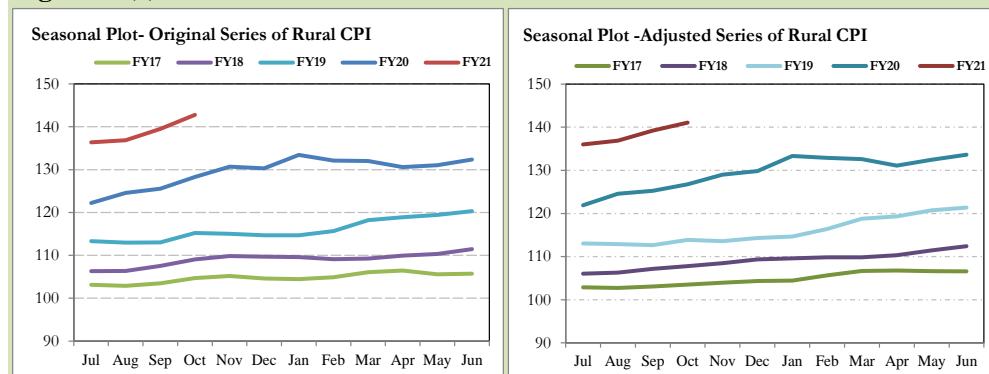


Fig. 12.2 (c) Seasonal Plots of Rural CPI



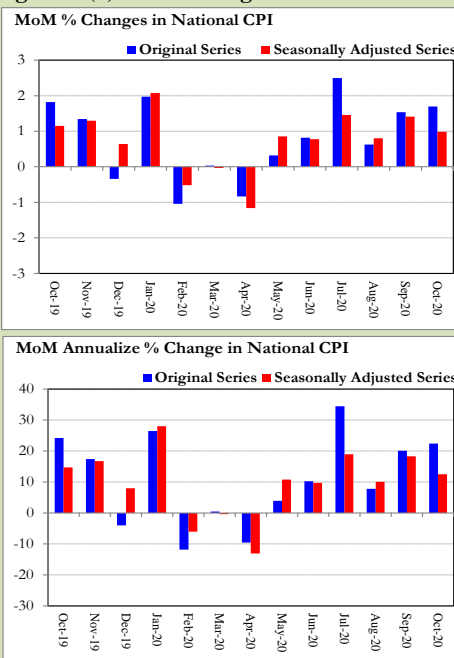
Seasonally adjusted National CPI for October 2020 stood at 139.30 against 140.67 in original series showing a decrease of 1.37 on account of adjustment of upward seasonality in October 2020.

Seasonally adjusted Urban CPI for October 2020 stood at 138.12 against 139.27 in original series showing a decrease of 1.15 on account of adjustment of upward seasonality in October 2020.

Seasonally adjusted Rural CPI for October 2020 stood at 141.07 against 142.79 in original series showing a decrease of 1.72 on account of adjustment of upward seasonality in October 2020.

Month-on-month change of seasonally adjusted National CPI series stood at 0.99% reflecting an increase during October

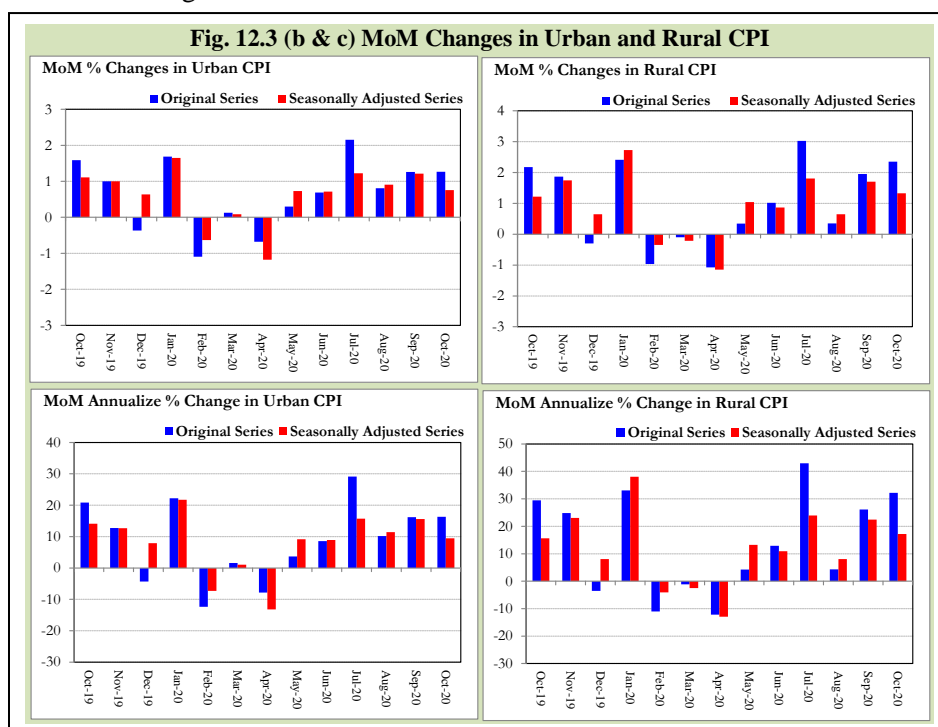
Fig. 12.3 (a) MoM Changes in National CPI



2020 over previous month and an increase of 1.70% in original series.

Month-on-month change of seasonally adjusted Urban CPI series stood at 0.76% reflecting an increase during October 2020 over previous month and an increase of 1.27% in original series.

Month-on-month change of seasonally adjusted Rural CPI series stood at 1.33% reflecting an increase during October 2020 over previous month and an increase of 2.35% 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 October 2020 (corresponding to the seasonally adjusted month-on-month rate) is 12.50 percent.

Annexure A

Table A1: National CPI Inflation by Groups (YoY and MoM in percent)							
	Weights	MoM change			YoY change		
		Oct-19	Sep-20	Oct-20	Oct-19	Sep-20	Oct-20
Food & Non-Alcoholic Beverages	34.6	2.3	3.8	3.9	15.0	14.7	16.6
Alcoholic Beverages & Tobacco	1.0	0.3	0.5	0.4	20.3	5.9	6.0
Clothing & Footwear	8.6	0.6	0.4	0.4	9.3	9.1	9.0
Housing, Water, Elec, Gas & other Fuels	23.6	3.7	0.0	0.4	7.2	6.1	2.7
Furnishing & Household Equip. Maintenance	4.1	0.8	1.1	0.9	11.3	7.9	8.0
Health	2.8	1.1	1.0	0.7	12.2	8.3	7.8
Transport	5.9	0.3	0.4	0.4	16.5	-1.5	-1.5
Communication	2.2	0.0	0.0	0.0	4.0	0.3	0.3
Recreation & Culture	1.6	0.6	0.8	0.6	7.4	3.9	3.9
Education	3.8	0.1	0.3	0.5	6.0	1.0	1.4
Restaurants & Hotels	6.9	0.3	0.7	0.9	6.0	8.2	8.9
Miscellaneous	4.9	0.6	0.0	0.1	12.5	12.2	11.6
Overall National CPI	100.0	1.8	1.5	1.7	11.0	9.0	8.9

Table A2: Urban CPI Inflation by Groups (YoY and MoM in percent)							
	Weights	MoM change			YoY change		
		Oct-19	Sep-20	Oct-20	Oct-19	Sep-20	Oct-20
I. Food Group	36.8	1.4	3.0	2.8	13.7	12.4	13.9
Food & Non-Alcoholic Beverages	30.4	1.7	3.5	3.2	15.0	13.3	14.9
Alcoholic Beverages & Tobacco	0.9	0.2	0.4	0.7	18.5	5.7	6.2
Restaurant & Hotels (Food Component)	5.5	0.3	0.8	1.0	6.2	8.7	9.4
II. Non-Food Group	63.2	1.7	0.2	0.3	9.3	5.0	3.6
Clothing & Footwear	8.0	0.3	0.4	0.3	9.0	8.0	8.0
Housing, Water, Elec, Gas & other Fuels	27.0	3.5	0.0	0.3	8.2	5.5	2.3
Furnishing & Household Equip. Maintenance	4.1	0.7	0.7	1.0	11.6	6.3	6.6
Health	2.3	0.8	1.0	0.9	11.2	7.2	7.3
Transport	6.1	0.4	0.7	0.4	17.5	-1.6	-1.7
Communication	2.4	0.1	0.0	0.0	5.2	0.3	0.3
Recreation & Culture	1.7	0.2	0.6	0.2	6.7	2.9	2.9
Education	4.9	0.2	0.3	0.5	6.2	0.9	1.2
Restaurants & Hotels (Non-food Component)	1.9	0.0	0.0	0.5	1.3	6.6	7.1
Miscellaneous	4.8	0.5	-0.4	-0.2	12.0	10.5	9.7
Overall Urban CPI	100.0	1.6	1.3	1.3	10.9	7.7	7.3

Table A3: Rural CPI Inflation by Groups (YoY and MoM in percent)							
	Weights	MoM change			YoY change		
		Oct-19	Sep-20	Oct-20	Oct-19	Sep-20	Oct-20
I. Food Group	45.9	2.6	3.8	4.3	14.6	15.8	17.7
Food & Non-Alcoholic Beverages	40.9	2.9	4.1	4.7	15.1	16.4	18.4
Alcoholic Beverages & Tobacco	1.3	0.5	0.7	0.2	22.4	6.1	5.7
Restaurant & Hotels (Food Component)	3.8	0.5	1.5	1.4	7.7	13.0	14.0
II. Non-Food Group	54.1	1.8	0.3	0.5	8.7	7.2	5.8
Clothing & Footwear	9.5	0.9	0.3	0.6	9.7	10.5	10.1
Housing, Water, Elec, Gas & other Fuels	18.5	4.1	0.0	0.5	4.9	7.4	3.7
Furnishing & Household Equip. Maintenance etc.	4.1	0.9	1.7	0.7	10.9	10.3	10.1
Health	3.5	1.3	0.9	0.4	13.1	9.3	8.3
Transport	5.6	0.1	-0.2	0.4	14.7	-1.4	-1.1
Communication	2.0	-0.1	0.1	0.1	2.0	0.2	0.4
Recreation & Culture	1.4	1.4	1.1	1.3	8.9	5.8	5.7
Education	2.1	0.0	0.4	0.9	5.3	1.2	2.1
Restaurants & Hotels (Non-food Component)	2.4	0.0	0.0	0.0	8.6	0.8	0.8
Miscellaneous	5.0	0.7	0.4	0.5	13.2	14.5	14.3
Overall Rural CPI		2.2	2.0	2.4	11.3	11.1	11.3

Table A4: Top Ten Contributors to Urban CPI Inflation (YoY) in October 2020					
Items/ Contributors		Weights	YoY Change		Weighted Contribution (%)
			Oct-19	Oct-20	
A. Ranked by Weighted Contribution					
1	House Rent	19.26	5.02	4.67	12.03
2	Milk Fresh	7.11	7.79	12.65	11.19
3	Wheat Flour	3.01	11.49	24.67	8.85
4	Condiments And Spices	1.33	18.14	36.60	7.32
5	Readymade Food	5.52	6.19	9.41	6.78
6	Sugar	1.11	34.64	32.97	4.57
7	Potatoes	0.45	45.00	53.14	4.48
8	Tomatoes	0.35	7.75	66.93	4.20
9	Wheat	0.61	8.95	52.21	3.74
10	Meat	2.04	13.54	11.30	3.38
Total		40.79			66.56
B. Ranked by Percentage Change					
1	Tomatoes	0.35	7.75	66.93	4.20
2	Potatoes	0.45	45.00	53.14	4.48
3	Wheat	0.61	8.95	52.21	3.74
4	Eggs	0.51	4.03	43.32	3.05
5	Pulse Moong	0.17	45.47	40.94	0.78
6	Beans	0.04	10.72	37.91	0.19
7	Condiments And Spices	1.33	18.14	36.60	7.32
8	Pulse Mash	0.12	31.03	35.64	0.33
9	Sugar	1.11	34.64	32.97	4.57
10	Wheat Products	0.09	10.41	31.52	0.36
Total		4.78			29.03
C. Ranked by Weights					
1	House Rent	19.26	5.02	4.67	12.03
2	Milk Fresh	7.11	7.79	12.65	11.19
3	Readymade Food	5.52	6.19	9.41	6.78
4	Education	4.88	6.21	1.20	0.89
5	Electricity Charges	4.56	10.44	-7.77	-4.72
6	Wheat Flour	3.01	11.49	24.67	8.85
7	Appliances/Articles/Products For P	2.98	10.27	6.52	2.53
8	Motor Fuel	2.91	20.70	-7.15	-3.44
9	Cotton Cloth	2.22	14.00	8.75	2.58
10	Meat	2.04	13.54	11.30	3.38
Total		54.48			40.07
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 October 2020.					

Table A5: Top Ten Contributors to Urban CPI Inflation (MoM) in October 2020					
Items/ Contributors		Weights	MoM Change		Weighted Contribution (%)
			Sep-20	Oct-20	
A. Ranked by Weighted Contribution					
1	Chicken	1.36	18.31	26.62	22.19
2	Tomatoes	0.35	44.07	48.36	18.69
3	Onions	0.59	14.51	39.07	16.42
4	House Rent	19.26	0.00	0.88	12.84
5	Eggs	0.51	5.20	23.81	10.62
6	Wheat Flour	3.01	0.54	4.10	9.64
7	Wheat	0.61	0.39	8.39	4.62
8	Sugar	1.11	-1.82	4.58	4.42
9	Readymade Food	5.52	0.76	0.98	4.19
10	Milk Fresh	7.11	1.16	0.44	2.37
		39.43			106.00
B. Ranked by Percentage Change					
1	Tomatoes	0.35	44.07	48.36	18.69
2	Onions	0.59	14.51	39.07	16.42
3	Chicken	1.36	18.31	26.62	22.19
4	Eggs	0.51	5.20	23.81	10.62
5	Wheat	0.61	0.39	8.39	4.62
6	Wheat Products	0.09	1.11	8.07	0.61
7	Sugar	1.11	-1.82	4.58	4.42
8	Wheat Flour	3.01	0.54	4.10	9.64
9	Besan	0.08	1.98	2.89	0.16
10	Doctor (Mbbs) Clinic Fee	0.40	3.28	2.57	1.08
		8.12			88.45
C. Ranked by Weights					
1	House Rent	19.26	0.00	0.88	12.84
2	Milk Fresh	7.11	1.16	0.44	2.37
3	Readymade Food	5.52	0.76	0.98	4.19
4	Education	4.88	0.29	0.46	1.88
5	Electricity Charges	4.56	-0.62	-2.33	-7.31
6	Wheat Flour	3.01	0.54	4.10	9.64
7	Appliances/Articles/Products For P	2.98	0.59	0.56	1.25
8	Motor Fuel	2.91	0.17	0.10	0.23
9	Cotton Cloth	2.22	0.00	0.01	0.01
10	Meat	2.04	0.36	0.57	1.03
		54.48			26.14
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 1.3 percent in October 2020.					

Table A6: Top and Bottom Fifteen Contributors to Urban CPI Inflation (YoY) in October 2020					
Top 15 Contributors			YoY Change		Weighted Contribution (%)
Items/ Contributors	Weights	Oct-19	Oct-20		
Ranked by Weighted Contribution					
1	House Rent	19.26	5.02	4.67	12.03
2	Milk Fresh	7.11	7.79	12.65	11.19
3	Wheat Flour	3.01	11.49	24.67	8.85
4	Condiments And Spices	1.33	18.14	36.60	7.32
5	Readymade Food	5.52	6.19	9.41	6.78
6	Sugar	1.11	34.64	32.97	4.57
7	Potatoes	0.45	45.00	53.14	4.48
8	Tomatoes	0.35	7.75	66.93	4.20
9	Wheat	0.61	8.95	52.21	3.74
10	Meat	2.04	13.54	11.30	3.38
11	Personal Effects N.E.C.	0.94	20.65	19.42	3.15
12	Eggs	0.51	4.03	43.32	3.05
13	Chicken	1.36	-2.02	18.22	2.97
14	Cotton Cloth	2.22	14.00	8.75	2.58
15	Appliances/Articles/Products For P	2.98	10.27	6.52	2.53
Total		48.81			80.83
Bottom 15 Contributors					
1	Electricity Charges	4.56	10.44	-7.77	-4.72
2	Motor Fuel	2.91	20.70	-7.15	-3.44
3	Fresh Vegetables	1.53	39.44	-9.09	-2.74
4	Onions	0.59	131.08	-8.35	-0.97
5	Liquefied Hydrocarbons	0.51	-5.58	-12.31	-0.97
6	Fresh Fruits	1.44	5.37	-3.85	-0.64
7	Fish	0.39	13.21	-8.99	-0.45
8	Newspapers	0.07	3.88	0.00	0.00
9	Motor Vehicle Tax	0.05	9.59	0.00	0.00
10	Communication Services	1.88	4.14	0.00	0.00
11	Gas Charges	1.08	54.84	0.00	0.00
12	Postal Services	0.02	0.00	0.23	0.00
13	Therapeutic Appliances And	0.01	0.30	7.36	0.00
14	Electrical Appliances For Personal	0.05	2.27	1.59	0.01
15	Major Tools & Equipments	0.01	4.95	8.81	0.01
Total		15.08			-13.90

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

<u>Top 15 Contributors</u>		<u>MoM Change</u>			Weighted Contribution (%)
Items/ Contributors	Weights	Sep-20	Oct-20		
Ranked by Weighted Contribution					
1	Chicken	1.36	18.31	26.62	22.19
2	Tomatoes	0.35	44.07	48.36	18.69
3	Onions	0.59	14.51	39.07	16.42
4	House Rent	19.26	0.00	0.88	12.84
5	Eggs	0.51	5.20	23.81	10.62
6	Wheat Flour	3.01	0.54	4.10	9.64
7	Wheat	0.61	0.39	8.39	4.62
8	Sugar	1.11	-1.82	4.58	4.42
9	Readymade Food	5.52	0.76	0.98	4.19
10	Milk Fresh	7.11	1.16	0.44	2.37
11	Education	4.88	0.29	0.46	1.88
12	Rice	1.18	0.84	1.45	1.35
13	Appliances/Articles/Products For P	2.98	0.59	0.56	1.25
14	Doctor (Mbbs) Clinic Fee	0.40	3.28	2.57	1.08
15	Transport Services	1.75	1.87	0.83	1.07
Total		50.62			112.63
Bottom 15 Contributors					
1	Fresh Vegetables	1.53	30.33	-6.36	-10.18
2	Electricity Charges	4.56	-0.62	-2.33	-7.31
3	Condiments And Spices	1.33	3.00	-2.39	-3.66
4	Fresh Fruits	1.44	-6.19	-3.31	-2.99
5	Personal Effects N.E.C.	0.94	-3.10	-1.88	-2.03
6	Beverages	0.89	0.19	-0.16	-0.11
7	Tea	0.84	0.00	-0.03	-0.02
8	Motor Vehicle Tax	0.05	0.00	0.00	0.00
9	Newspapers	0.07	0.00	0.00	0.00
10	Communication Services	1.88	0.00	0.00	0.00
11	Gas Charges	1.08	0.00	0.00	0.00
12	Garbage Collection	0.11	0.00	0.00	0.00
13	Electrical Appliances For Personal	0.05	0.00	0.04	0.00
14	Major Tools & Equipments	0.01	0.33	0.26	0.00
15	Ice Cream	0.10	0.00	0.02	0.00
Total		14.88			-26.28

Table A8: Top and Bottom Fifteen Contributors to MoM Urban CPI Food Inflation in October 2020					
Top 15 Contributors			MoM Change		Weighted Contribution (%)
Items/ Contributors	Weights	Sep-20	Oct-20		
Ranked by Weighted Contribution					
1	Chicken	1.36	18.31	26.62	22.19
2	Tomatoes	0.35	44.07	48.36	18.69
3	Onions	0.59	14.51	39.07	16.42
4	Eggs	0.51	5.20	23.81	10.62
5	Wheat Flour	3.01	0.54	4.10	9.64
6	Wheat	0.61	0.39	8.39	4.62
7	Sugar	1.11	-1.82	4.58	4.42
8	Readymade Food	5.52	0.76	0.98	4.19
9	Milk Fresh	7.11	1.16	0.44	2.37
10	Rice	1.18	0.84	1.45	1.35
11	Meat	2.04	0.36	0.57	1.03
12	Marriage Hall Charges	1.75	0.03	0.48	0.65
13	Wheat Products	0.09	1.11	8.07	0.61
14	Potatoes	0.45	6.18	0.82	0.58
15	Sweet Meat	0.35	0.51	1.77	0.52
Total		26.04			97.91
Bottom 15 Contributors					
1	Fresh Vegetables	1.53	30.33	-6.36	-10.18
2	Condiments And Spices	1.33	3.00	-2.39	-3.66
3	Fresh Fruits	1.44	-6.19	-3.31	-2.99
4	Beverages	0.89	0.19	-0.16	-0.11
5	Tea	0.84	0.00	-0.03	-0.02
6	Ice Cream	0.10	0.00	0.02	0.00
7	Dessert Preparation	0.04	0.11	0.43	0.01
8	Mustard Oil	0.01	1.07	1.57	0.01
9	Beans	0.04	0.15	0.81	0.03
10	Nimco	0.12	0.98	0.55	0.05
11	Gram Whole	0.09	-0.48	0.85	0.05
12	Butter	0.09	0.33	0.78	0.07
13	Gur	0.04	3.06	2.38	0.07
14	Pulse Masoor	0.16	1.59	0.85	0.08
15	Pan Prepared	0.14	0.87	0.53	0.09
Total		6.88			-16.48

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

<u>Top 15 Contributors</u>		<u>MoM Change</u>			
Items/ Contributors		Weights	Sep-20	Oct-20	Weighted Contribution (%)
Ranked by Weighted Contribution					
1	House Rent	19.26	0.00	0.88	12.84
2	Education	4.88	0.29	0.46	1.88
3	Personal Grooming Services	2.98	0.59	0.56	1.25
4	Doctor (Mbbs) Clinic Fee	0.40	3.28	2.57	1.08
5	Transport Services	1.75	1.87	0.83	1.07
6	Washing Soap/Detergents/Match Box	1.41	1.60	0.79	0.85
7	Readymade Garments	1.32	0.44	0.82	0.82
8	Liquefied Hydrocarbons	0.51	-1.51	2.12	0.79
9	Furniture And Furnishing	0.48	0.38	1.90	0.69
10	Household Equipments	1.00	0.41	0.88	0.67
11	Household Servant	0.77	0.02	0.87	0.51
12	Hosiery	0.41	0.33	1.50	0.46
13	Hospitals Services	0.57	0.02	0.83	0.35
14	Household Textiles	0.34	0.07	1.36	0.34
15	Drugs And Medicines	1.07	0.30	0.35	0.31
Total		37.15			23.90
<u>Bottom 15 Contributors</u>					
1	Electricity Charges	4.56	-0.62	-2.33	-7.31
2	Electrical Appliances For Personal	0.94	-3.10	-1.88	-2.03
3	Personal Effects N.E.C.	0.00	0.00	0.00	0.00
4	Appliances/Articles/Products For P	0.00	0.00	0.00	0.00
5	Motor Vehicle Tax	0.05	0.00	0.00	0.00
6	Newspapers	0.07	0.00	0.00	0.00
7	Communication Services	1.88	0.00	0.00	0.00
8	Gas Charges	1.08	0.00	0.00	0.00
9	Garbage Collection	0.11	0.00	0.00	0.00
10	Accommodation Services	0.05	0.00	0.04	0.00
11	Major Tools & Equipments	0.01	0.33	0.26	0.00
12	Plastic Products	0.05	0.78	0.07	0.00
13	Dental Services	0.02	0.76	0.26	0.00
14	Postal Services	0.02	0.00	0.23	0.00
15	Therapeutic Appliances And	0.01	0.29	1.13	0.00
Total		8.84			-9.31

Table A10: Top Ten Contributors to Rural CPI Inflation (YoY) in October 2020					
Items/ Contributors		Weights	YoY Change		Weighted Contribution (%)
			Oct-19	Oct-20	
A. Ranked by Weighted Contribution					
1	Wheat	3.47	9.21	51.11	13.62
2	Wheat Flour	3.43	12.93	29.43	7.93
3	Condiments And Spices	1.49	11.06	53.69	6.91
4	Milk Fresh	10.38	7.63	7.68	6.67
5	Potatoes	0.74	42.20	61.02	5.74
6	Sugar	2.03	36.16	33.37	5.62
7	Tomatoes	0.51	-6.93	104.01	5.10
8	Readymade Food	3.80	7.69	14.00	4.74
9	Solid Fuel	4.48	3.94	12.31	4.46
10	House Rent	8.61	4.10	5.20	3.90
Total		38.94			64.69
B. Ranked by Percentage Change					
1	Tomatoes	0.51	-6.93	104.01	5.10
2	Potatoes	0.74	42.20	61.02	5.74
3	Condiments And Spices	1.49	11.06	53.69	6.91
4	Wheat	3.47	9.21	51.11	13.62
5	Eggs	0.57	0.96	43.71	2.15
6	Pulse Moong	0.25	48.26	38.99	0.76
7	Water Supply	0.06	27.17	38.75	0.27
8	Pulse Mash	0.15	29.85	33.87	0.27
9	Sugar	2.03	36.16	33.37	5.62
10	Beans	0.09	11.03	31.63	0.25
Total		9.36			40.67
C. Ranked by Weights					
1	Milk Fresh	10.38	7.63	7.68	6.67
2	House Rent	8.61	4.10	5.20	3.90
3	Solid Fuel	4.48	3.94	12.31	4.46
4	Readymade Food	3.80	7.69	14.00	4.74
5	Wheat	3.47	9.21	51.11	13.62
6	Electricity Charges	3.44	10.44	-7.77	-2.34
7	Wheat Flour	3.43	12.93	29.43	7.93
8	Cotton Cloth	2.84	11.63	13.59	3.69
9	Motor Fuels	2.49	20.97	-7.22	-1.94
10	Vegetable Ghee	2.38	17.10	17.30	3.87
Total		45.32			44.60
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 11.3 percent in October 2020.					

Table A11: Top Ten Contributors to Rural CPI Inflation (MoM) in October 2020					
Items/ Contributors		Weights	MoM Change		Weighted Contribution (%)
			Sep-20	Oct-20	
A. Ranked by Weighted Contribution					
1	Tomatoes	0.51	30.33	64.99	17.42
2	Onions	0.90	15.17	58.39	16.83
3	Chicken	1.46	9.47	23.14	11.49
4	Wheat	3.47	5.03	5.54	9.34
5	Eggs	0.57	0.93	24.88	6.23
6	Wheat Flour	3.43	3.14	3.28	4.89
7	Sugar	2.03	-0.63	4.89	4.63
8	Fresh Vegetables	2.09	45.18	4.06	4.41
9	House Rent	8.61	0.00	0.77	2.68
10	Milk Fresh	10.38	1.16	0.61	2.50
		33.45			80.42
B. Ranked by Percentage Change					
1	Tomatoes	0.51	30.33	64.99	17.42
2	Onions	0.90	15.17	58.39	16.83
3	Eggs	0.57	0.93	24.88	6.23
4	Chicken	1.46	9.47	23.14	11.49
5	Wheat	3.47	5.03	5.54	9.34
6	Sugar	2.03	-0.63	4.89	4.63
7	Fresh Vegetables	2.09	45.18	4.06	4.41
8	Fresh Fruits	1.45	-10.44	3.50	1.61
9	Wheat Flour	3.43	3.14	3.28	4.89
10	Wheat Products	0.11	3.16	3.07	0.14
		16.02			76.98
C. Ranked by Weights					
1	Milk Fresh	10.38	1.16	0.61	2.50
2	House Rent	8.61	0.00	0.77	2.68
3	Solid Fuel	4.48	0.15	1.33	2.36
4	Readymade Food	3.80	1.50	1.36	2.29
5	Wheat	3.47	5.03	5.54	9.34
6	Electricity Charges	3.44	-0.62	-2.33	-2.93
7	Wheat Flour	3.43	3.14	3.28	4.89
8	Cotton Cloth	2.84	0.00	0.29	0.39
9	Motor Fuels	2.49	0.04	0.02	0.02
10	Vegetable Ghee	2.38	-0.35	1.12	1.29
		45.32			22.84
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 2.4 percent in October 2020.					

Table A12: Top and Bottom Fifteen Contributors to Rural CPI Inflation (YoY) in October 2020					
Top 15 Contributors			YoY Change		Weighted Contribution (%)
Items/ Contributors	Weights	Oct-19	Oct-20		
Ranked by Weighted Contribution					
1	Wheat	3.47	9.21	51.11	13.62
2	Wheat Flour	3.43	12.93	29.43	7.93
3	Condiments And Spices	1.49	11.06	53.69	6.91
4	Milk Fresh	10.38	7.63	7.68	6.67
5	Potatoes	0.74	42.20	61.02	5.74
6	Sugar	2.03	36.16	33.37	5.62
7	Tomatoes	0.51	-6.93	104.01	5.10
8	Readymade Food	3.80	7.69	14.00	4.74
9	Solid Fuel	4.48	3.94	12.31	4.46
10	House Rent	8.61	4.10	5.20	3.90
11	Vegetable Ghee	2.38	17.10	17.30	3.87
12	Cotton Cloth	2.84	11.63	13.59	3.69
13	Personal Effects N.E.C.	1.21	25.69	23.48	3.01
14	Rice	1.55	9.05	17.93	2.98
15	Eggs	0.57	0.96	43.71	2.15
Total		47.48			80.38
Bottom 15 Contributors					
1	Fresh Vegetables	2.09	34.67	-9.53	-2.69
2	Electricity Charges	3.44	10.44	-7.77	-2.34
3	Motor Fuels	2.49	20.97	-7.22	-1.94
4	Liquefied Hydrocarbons	1.00	-3.63	-10.84	-1.01
5	Onions	0.90	122.47	-2.56	-0.27
6	Fish	0.26	19.41	-1.30	-0.03
7	Gram Whole	0.11	0.68	-0.67	-0.01
8	Motor Vehicle Tax	0.02	17.87	0.00	0.00
9	Postal Services	0.01	31.47	0.00	0.00
10	Communication Services	1.65	1.15	0.00	0.00
11	Accommodation Services	0.14	0.00	0.03	0.00
12	Garbage Collection	0.01	1.15	7.64	0.01
13	Newspapers	0.02	0.00	2.40	0.01
14	Dessert Preparation	0.01	6.75	10.40	0.01
15	Mustard Oil	0.01	9.05	12.12	0.01
Total		12.17			-8.25

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

<u>Top 15 Contributors</u>		<u>MoM Change</u>		Weighted Contribution (%)	
Items/ Contributors	Weights	Sep-20	Oct-20		
Ranked by Weighted Contribution					
1	Tomatoes	0.51	30.33	64.99	17.42
2	Onions	0.90	15.17	58.39	16.83
3	Chicken	1.46	9.47	23.14	11.49
4	Wheat	3.47	5.03	5.54	9.34
5	Eggs	0.57	0.93	24.88	6.23
6	Wheat Flour	3.43	3.14	3.28	4.89
7	Sugar	2.03	-0.63	4.89	4.63
8	Fresh Vegetables	2.09	45.18	4.06	4.41
9	House Rent	8.61	0.00	0.77	2.68
10	Milk Fresh	10.38	1.16	0.61	2.50
11	Solid Fuel	4.48	0.15	1.33	2.36
12	Readymade Food	3.80	1.50	1.36	2.29
13	Potatoes	0.74	3.36	3.05	1.99
14	Fresh Fruits	1.45	-10.44	3.50	1.61
15	Meat	1.71	0.17	1.76	1.40
Total		45.64			90.06
<u>Bottom 15 Contributors</u>					
1	Electricity Charges	3.44	-0.62	-2.33	-2.93
2	Condiments And Spices	1.49	5.63	-1.85	-1.65
3	Pulse Moong	0.25	7.79	-2.91	-0.36
4	Beans	0.09	0.62	-0.71	-0.03
5	Marriage Hall Charges	2.25	0.00	0.00	0.00
6	Woolen Readymade Garments	0.54	0.00	0.00	0.00
7	Postal Services	0.01	0.00	0.00	0.00
8	Communication Services	1.65	0.00	0.00	0.00
9	Motor Vehicle Tax	0.02	0.00	0.00	0.00
10	Garbage Collection	0.01	0.00	0.00	0.00
11	Dental Services	0.02	2.99	0.00	0.00
12	Tea	1.26	0.06	0.00	0.00
13	Water Supply	0.06	0.87	0.00	0.00
14	Hospitals Services	1.01	1.09	0.00	0.00
15	Ice Cream	0.06	0.00	0.02	0.00
Total		12.15			-4.97

Table A14: Top and Bottom Fifteen Contributors to MoM Rural CPI Food Inflation in October 2020					
Top 15 Contributors		MoM Change		Weighted	
Items/ Contributors	Weights	Sep-20	Oct-20	Contribution (%)	
Ranked by Weighted Contribution					
1	Tomatoes	0.51	30.33	64.99	17.42
2	Onions	0.90	15.17	58.39	16.83
3	Chicken	1.46	9.47	23.14	11.49
4	Wheat	3.47	5.03	5.54	9.34
5	Eggs	0.57	0.93	24.88	6.23
6	Wheat Flour	3.43	3.14	3.28	4.89
7	Sugar	2.03	-0.63	4.89	4.63
8	Fresh Vegetables	2.09	45.18	4.06	4.41
9	Milk Fresh	10.38	1.16	0.61	2.50
10	Readymade Food	3.80	1.50	1.36	2.29
11	Potatoes	0.74	3.36	3.05	1.99
12	Fresh Fruits	1.45	-10.44	3.50	1.61
13	Meat	1.71	0.17	1.76	1.40
14	Vegetable Ghee	2.38	-0.35	1.12	1.29
15	Rice	1.55	2.20	1.39	1.19
Total		36.48			87.50
Bottom 15 Contributors					
1	Condiments And Spices	1.49	5.63	-1.85	-1.65
2	Pulse Moong	0.25	7.79	-2.91	-0.36
3	Beans	0.09	0.62	-0.71	-0.03
4	Marriage Hall Charges	2.25	0.00	0.00	0.00
5	Tea	1.26	0.06	0.00	0.00
6	Ice Cream	0.06	0.00	0.02	0.00
7	Dessert Preparation	0.01	0.12	0.96	0.00
8	Pan Prepared	0.04	3.62	0.42	0.01
9	Mustard Oil	0.01	1.38	2.42	0.01
10	Honey	0.03	0.00	2.50	0.03
11	Gur	0.15	4.57	0.45	0.03
12	Besan	0.07	2.95	1.24	0.03
13	Nimco	0.08	4.04	1.18	0.03
14	Beverages	0.55	0.90	0.16	0.04
15	Milk Powder	0.11	0.09	1.15	0.05
Total		6.46			-1.80

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

<u>Top 15 Contributors</u>		<u>MoM Change</u>			Weighted Contribution (%)
Items/ Contributors		Weights	Sep-20	Oct-20	
Ranked by Weighted Contribution					
1	House Rent	8.61	0.00	0.77	2.68
2	Solid Fuel	4.48	0.15	1.33	2.36
3	Liquefied Hydrocarbons	1.00	-0.35	2.65	0.95
4	Appliances/Articles/Products For	2.27	1.24	0.89	0.78
5	Education	2.13	0.45	0.88	0.77
6	Transport Services	1.80	-0.72	1.07	0.76
7	Footwear	1.92	0.10	0.85	0.65
8	Woolen Cloth	1.10	0.98	1.37	0.60
9	Washing Soaps, Detergents And	1.70	1.72	0.79	0.52
10	Construction Input Items	0.63	1.03	2.13	0.50
11	Stationery	0.37	2.00	2.75	0.42
12	Cotton Cloth	2.84	0.00	0.29	0.39
13	Hosiery	0.43	1.95	1.71	0.37
14	Household Equipments	1.28	1.95	0.51	0.28
15	Personal Grooming Services	1.54	4.79	0.40	0.28
Total		32.09			12.31
<u>Bottom 15 Contributors</u>					
1	Electricity Charges	3.44	-0.62	-2.33	-2.93
2	Woolen Readymade Garments	0.54	0.00	0.00	0.00
3	Postal Services	0.01	0.00	0.00	0.00
4	Communication Services	1.65	0.00	0.00	0.00
5	Motor Vehicle Tax	0.02	0.00	0.00	0.00
6	Garbage Collection	0.01	0.00	0.00	0.00
7	Dental Services	0.02	2.99	0.00	0.00
8	Water Supply	0.06	0.87	0.00	0.00
9	Hospitals Services	1.01	1.09	0.00	0.00
10	Accommodation Services	0.14	0.00	0.03	0.00
11	Motor Vehicles	0.73	0.04	0.01	0.00
12	Major Tools And Equipments	0.03	0.59	0.31	0.00
13	Cleaning And Laundering	0.02	1.22	0.88	0.01
14	Motor Fuels	2.49	0.04	0.02	0.02
15	Newspapers	0.02	0.00	2.40	0.03
Total		10.19			-2.86

Table A16: Distribution of Price Changes (YoY) - Selected Urban CPI Items: October 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	Chilies (Green), Apple (Average Quality), Fish Rahu (Medium Size), Onions	Cumin Seed (Zeera) White National 50 Gm Packet, Pepper Black National 50 Gm Packet	Mutton (Average Quality), Lactogen 400 Gm Packet, Sweetmeat (Mixed Mithai), Bananas (Kela) Local	Chilies Powder National 200 Gm Packet, Tomatoes, Cardamom Small (Average Quality), Potatoes, Wheat, Ginger (Adrak), Eggs Farm, Suji, Pulse Moong (Washed)
Alcoholic Beverages & Tobacco		Cigarettes Capstan 20'S Packet	Cigarettes Gold Leaf 20'S Packet	Pan Prepared (Sweet With Beetle Nuts)
Clothing & Footwear	Ladies Sandal Bata, Gents Sandal Bata	Full Pant Boy Length 24"/26", Tailoring Charges Pant (Men), Chaddar (Wash-N-Wear) (2X2.5 Meter), Tailoring Charges Shirt (Men)	Tailoring Charges Awami Suit (Male), Vest "Baniyan" For Men Average Quality, Shirting (Average Quality), Children Shoes Power Lite Bata	Gents Shoes Servis, Georgette (Average Quality), Washing Charges Shalwar Kameez, Dopatta Cotton (Average Quality), Gents Shoes Paul Bata, Dopatta Georgette (Average Quality), Cheetah 50 Size 3-5 Servis, Pullover Ladies Oxford/Bonanza
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	Firewood Whole, House Rent Combined, Plumber Wage Rate, Sand (Black Pit), Iron Bars (M.S. Bar) 1/2 " 40 Grade, Cement Blocks (6"X8"X12")	Synthetic Enamel Ici Balti 3.64 Litre, Mason Wage Rate, Unskilled Labor Wage Rate, Bricks New 1St Class, Electrician Charges, Painter Wage Rate	Water Charges Per House, Charges For Refuse/Waste Collection
Furnishing & Household Equip. Maintenance etc		Lota Plastic Medium Size (Average Quality), Electric Iron Dry (National/West Point)	Chair Sheesham Wood With Arm, Sofa Set Five Seater, Dinner Set Plastic 72 Pieces Super Quality, Energy Saver Philips 14 Watt	Tube Light Philips 40 Watt, Phenyl Tyfon/Finis 2.75 Litre Bottle, Central Table Set With Glass Top, Robin Blue Liquid 75 Ml Bottle, Harpic 500 Ml Bottle, Ceiling Fan 56" Pak/Younas/Millat, Geyser Super Asia Large Size 30 Gallons (Gas)
Health	Johar Joshanda Instant (Sachet) Packet	X-Ray (Chest) Charges, Gynecologist Fee Per Visit, Dental Extraction Fee, Ultrasound Abdominal	Flagyl Tablets 400 Mg, Electronic Bp Checking Apparatus, Calpol Syrup 100 Ml Bottle	Ventolin Tablets 2 Mg, Dettol Medium Bottle, Doctor (Mbbs) Clinic Fee, Septeran Tablets, Urine Test (Dr) Charges, Lederplex Syrup Bottle, Glaxose-D 400 Gm Packet
Transport	Hi-Speed Diesel, Petrol Super, Cng, Train Fare Business Class Per Person, Train Fare Ac Lower Per Person	Motorcycle United/Unique 70 Cc, Mobil Oil (Havoline 20W-50), Motorcycle Honda Cd 70, Suzuki Fare Minimum Within City	Bus Fare Minimum Within City, Car Honda Civic Turbo 1.5 Vtec	Bus Fare Maximum Within City, Tire Car Puncture Charges, Mini Bus Fare Maximum Within City, Bicycle, Tire Car Mehran Tubeless (General), Mini Bus Fare Minimum Within City, Taxi Four Seater Fare
Communication	Telephone Call Charges, Mobile Call Charges, Internet Charges (Dsl) 1 Mb (Unlimited)	Mobile Set With Rear Camera And Without Touch Screen		
Recreation & Culture	Newspaper Daily Jang, Mag The Weekly (Magazine), Newspaper Daily Dawn, Akhbar-E-Jehan Weekly, Recreational Park Charges (Minimum Playland Ticket)	Ballpoint Pen Local, Photostat Paper 70 Gm, Led Sony/Samsung 32" Colored, English Book Class IX And X, Urdu Book Class Xi/Inter, English Book Class Vi		Laptop Dell/Hp/Acer Core I5, Display (14"-15"), Lead Pencil Goldfish
Education	Vocational Training Basic Computer Short Course Fee (3 Months)	Private School Fee English Medium Average Standard (Class I)		
Restaurant & Hotels		Cooked Chicken At Average Hotel, Chicken Biryani Full/Double	Cooked Beef At Average Hotel, Cooked Daal At Average Hotel	Bread Tandoori Standard Size, Tea Prepared Ordinary
Miscellaneous		Shampoo Sun Silk/Pantene 90 Ml Bottle, Toilet Soap Lux 75 Gm, Tissue Paper Perfumed Box 100 Napkins	Shaving Charges, Talcum Powder Viceroy/Black Cat Large Size, Hair Color (Kala Kola)	Gold Tezabi 24 Carett, Silver Tezabi 24 Carett, Tooth Brush (Shield), Face Cream Ponds Medium Size (Cold)

Table A17: Distribution of Price Changes (YoY) - Selected Rural CPI Items: October 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	Chilies (Green), Cauliflower (Phool Gobhi), Garlic (Lehsun), Brinjal, Bottlegourd (Loki)	Spinach (Paalak), Curd, Cold Drink (Pepsi/Coca-Cola) 1.5 Liter Bottle, Tea Lipton Yellow Label 190 Gm Packet	Mutton (Average Quality), Cucumber (Kheera), Turmeric Powder Loose, Arvi, Pulse Gram, Radish (Mooli)	Chilies Powder Loose, Tomatoes, Potatoes, Ginger (Adrak), Wheat, Eggs Farm, Pulse Moong (Washed), Suji, Pulse Mash (Washed), Sugar Refined, Wheat Flour (Average Quality)
Alcoholic Beverages & Tobacco		Cigarettes Capstan 20'S Packet, Cigarettes Gold Leaf 20'S Packet	Tobacco Hukka Twisted	Pan Prepared (Sweet With Beetle Nuts), Chewing Tobacco (Niswar)
Clothing & Footwear		School Uniform Girls (Kameez & Shalwar) 24"/26", Linen, Ladies (Average Quality)	Lungi/Dhoti Cotton (Average Quality), Dopatta Cotton (Average Quality), Full Pant Boy Length 24"/26", Shirt Boy Length 24"/26", Pullover Ladies (Average Quality)	Brassier (Average Quality), Vest "Baniyan" For Men Average Quality, Washing Charges Shalwar Kameez, Shirting (Average Quality), Long Cloth, Shoe Repair Full Sole, Footware Ladies Local (Average Quality), Georgette (Average Quality), Underwear Medium Size (Average Quality)
Housing, Water, Elect, Gas & other Fuels	Electricity Charges 51-100 Units, Kerosene Oil, Lpg 11.67 Kg Cylinder, Electricity Charges 101-300 Units, Electricity Charges 301-1000 Units	Bajri, Cement (Local) 50 Kg Bag	Charges For Refuse/Waste Collection, Sand (Black Pit), Unskilled Labor Wage Rate, House Rent Combined, Mason Wage Rate	Water Charges Per House, Coal, Electrician Charges, Painter Wage Rate, Carpenter Wage Rate, Bricks New 1St Class, Firewood Whole, Plumber Wage Rate
Furnishing & Household Equip. Maintenance etc.		Express Washing Powder 1 Kg Polybag, Cleanser Powder Vim 900 Gm Polybag, Readymade Quilt (3 Kg)	Blanket Single (Sn), Plates Steel Medium Size (Average Quality), Energy Saver Philips 14 Watt, Sewing Machine (Sn) Without Cover	Tube Light Philips 40 Watt, Robin Blue Liquid 75 Ml Bottle, Towel Medium Size (2' X 3'), Bucket (Balti) Plastic Medium Size, Washing Soap 250 Gm Cake (Specify Name), Ceiling Fan 56" Pak/Younas/Millat
Health	Johar Joshanda Instant (Sachet) Packet	Panadol Tablets Plain, Cac 1000 Tablets Sandoz Bottle, Hydryllin Syrup 120 Ml Bottle	Daonil Tablets 5 Mg, X-Ray (Chest) Charges, Amoxil Capsule 250 Mg	Dettol Medium Bottle, Doctor (Mbbs) Clinic Fee, Blood Test (Cp) Charges, Dental Surgeon Fee Per Visit, Inderal Tablets 10 Mg
Transport	Hi-Speed Diesel, Petrol Super, Cng, Air Fare Economy Class Per Kilometer, Car Tax 800 Cc To 1500 Cc	Motorcycle Honda Cd 70, Train Fare Economy Per Person, Tire Motorcycle Cd 70 (Back Wheel)	Bicycle, Motorcycle Service Charges, Mobil Oil (Havoline 20W-50), Tire Cycle	Tire Car Mehran Tubeless (General), Chingchi Rickshaw Charges, Minimum
Communication	Telephone Call Charges, Mobile Call Charges, Postal Registration Charges	Mobile Set With Rear Camera And Without Touch Screen		
Recreation & Culture		Pets Feed, Newspaper Daily Jang, Cable Charges	Personal Computer With Led Monitor (17") Dell/Hp/Acer Core I5, Exercise Book (With Lines) 80 To 100 Pages, Ballpoint Pen Local, Lead Pencil Goldfish	
Education		Private School Fee English Medium Average Standard (Class V)		
Restaurant & Hotels		Marriage Hall Charges With Furniture	Cooked Chicken At Average Hotel	Cooked Daal At Average Hotel, Bread Tandoori Standard Size, Tea Prepared Ordinary, Cooked Beef At Average Hotel
Miscellaneous			Tooth Brush (Shield), Suitcase Ragzine (24"X16"X6") (Average Quality), Toilet Soap Lux 75 Gm	Gold Tezabi 24 Carett, Artificial Jewelry (Locket Set) (Average Quality), Shaving Charges, Hair Cut Charges For Men, Tooth Paste Colgate 75 Gm, Disposable Razor Gillette Blue Ii

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

Table A19: International Commodity Prices/Indices

	Jul-20	Aug-20	Sep-20	Oct-20
Energy				
Crude Oil (US\$ per barrel)*	42.1	43.4	40.6	39.9
Energy Index (2010 = 100)	51.2	53.8	51.0	51.2
Food				
Rice (\$/MT)	480.0	505.0	507.0	471.0
Wheat (\$/MT)##	NA	NA	NA	NA
Sugar (US cent/ pound)^	12.3	13.1	12.8	13.7
Palm Oil (\$/MT)	694.2	760.3	796.2	819.3
Soybean Oil (\$/MT)	821.1	866.9	905.9	914.8
Non-Food Non-Energy				
Cotton Outlook 'A' Index #^	68.5	69.9	70.8	74.8
Metal Price Index (2010 = 100)	80.2	83.6	85.2	86.3
Copper (\$/MT)	6,372.5	6,498.9	6,704.9	6,713.8
Aluminum (\$/MT)	1,643.8	1,737.3	1,743.8	1,806.1
Iron Ore (\$ cents/dry MT)	108.5	121.1	123.8	119.8
Tin (\$/MT)	17,469.9	17,650.0	17,951.3	18,176.6
Nickel (\$/MT)	13,402.3	14,537.8	14,857.5	15,239.4
Zinc (\$/MT)	2,177.2	2,410.1	2,442.5	2,440.7
Lead (\$/MT)	1,817.9	1,935.7	1,872.9	1,776.3
Uranium (\$/MT)@	32.5	30.9	29.9	29.7
DAP (\$/MT)	305.1	341.9	358.4	357.1
Urea (\$/MT)	214.4	249.5	250.5	245.0

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 June 1981 strict middling 1-1/16 inch staple. Prior to 1968, Mexican 1-1/16.2/

Wheat numbers for the month of July, 2020 onwards have not been provided by the World Bank in their latest release

DAP: Diammonium Phosphate

Table A20: National CPI Data Series Original and Seasonally Adjusted					
Original Series					
Period	FY17	FY18	FY19	FY20	FY21
Jul	103.17	107.15	114.29	123.86	135.38
Aug	102.80	107.31	113.93	125.89	136.23
Sep	103.23	108.05	113.90	126.86	138.32
Oct	104.19	109.22	116.32	129.16	140.67
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	132.08	
Seasonally Adjusted Series					
Jul	102.82	106.77	113.89	123.44	134.93
Aug	102.50	107.04	113.68	125.66	136.02
Sep	102.80	107.64	113.52	126.48	137.94
Oct	103.23	108.21	115.23	127.93	139.30
Nov	103.73	108.92	115.05	129.59	
Dec	104.16	109.95	115.82	130.42	
Jan	104.63	110.11	116.22	133.13	
Feb	105.79	110.47	117.88	132.44	
Mar	106.81	110.62	120.15	132.39	
Apr	107.06	111.32	120.54	130.85	
May	107.07	112.42	121.91	131.97	
Jun	107.18	113.29	122.43	133.00	

Table A21: Urban CPI Data Series Original and Seasonally Adjusted					
Original Series					
Period	FY17	FY18	FY19	FY20	FY21
Jul	103.20	107.71	114.94	124.95	134.73
Aug	102.73	107.93	114.58	126.77	135.82
Sep	103.06	108.38	114.49	127.72	137.53
Oct	103.87	109.34	117.04	129.75	139.27
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	131.89	
Seasonally Adjusted Series					
Jul	102.77	107.25	114.47	124.46	134.22
Aug	102.33	107.54	114.20	126.39	135.44
Sep	102.63	107.96	114.08	127.29	137.09
Oct	103.05	108.48	116.11	128.70	138.12
Nov	103.58	109.19	116.02	129.99	
Dec	104.04	110.34	116.81	130.82	
Jan	104.76	110.46	117.26	132.98	
Feb	105.89	110.89	118.86	132.14	
Mar	106.89	111.14	121.04	132.26	
Apr	107.23	112.00	121.36	130.70	
May	107.34	113.06	122.71	131.66	
Jun	107.57	113.89	123.14	132.60	

Table A22: Rural CPI Data Series Original and Seasonally Adjusted					
Original Series					
Period	FY17	FY18	FY19	FY20	FY21
Jul	103.12	106.30	113.30	122.22	136.36
Aug	102.90	106.37	112.96	124.56	136.84
Sep	103.49	107.54	113.01	125.55	139.51
Oct	104.68	109.05	115.23	128.28	142.79
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	132.36	
Seasonally Adjusted Series					
Jul	102.90	106.04	113.03	121.91	136.01
Aug	102.76	106.28	112.91	124.56	136.89
Sep	103.07	107.17	112.68	125.25	139.22
Oct	103.50	107.81	113.90	126.77	141.07
Nov	103.94	108.50	113.59	128.98	
Dec	104.35	109.37	114.32	129.82	
Jan	104.45	109.58	114.64	133.35	
Feb	105.64	109.83	116.39	132.89	
Mar	106.68	109.83	118.80	132.61	
Apr	106.79	110.31	119.31	131.09	
May	106.65	111.46	120.71	132.45	
Jun	106.59	112.40	121.36	133.60	

Table A23: National CPI Monthly & Average Seasonal Factors						
Period	FY17	FY18	FY19	FY20	FY21	Average
Jul	100.34	100.35	100.35	100.34	100.33	100.34
Aug	100.29	100.25	100.22	100.18	100.16	100.22
Sep	100.41	100.37	100.33	100.30	100.28	100.34
Oct	100.93	100.94	100.95	100.96	100.99	100.95
Nov	100.93	100.95	100.98	101.01		100.97
Dec	99.92	99.97	100.01	100.03		99.98
Jan	99.90	99.91	99.91	99.93		99.91
Feb	99.28	99.32	99.36	99.40		99.34
Mar	99.38	99.40	99.43	99.47		99.42
Apr	99.86	99.84	99.83	99.80		99.83
May	99.34	99.32	99.29	99.27		99.30
Jun	99.40	99.37	99.35	99.31		99.36

Table A24: Urban CPI Monthly & Average Seasonal Factors						
Period	FY17	FY18	FY19	FY20	FY21	Average
Jul	100.42	100.43	100.41	100.40	100.38	100.41
Aug	100.39	100.36	100.34	100.30	100.28	100.34
Sep	100.42	100.39	100.36	100.34	100.32	100.37
Oct	100.79	100.79	100.80	100.81	100.83	100.81
Nov	100.75	100.77	100.79	100.81		100.78
Dec	99.72	99.76	99.80	99.81		99.77
Jan	99.84	99.84	99.84	99.84		99.84
Feb	99.27	99.30	99.34	99.38		99.32
Mar	99.33	99.36	99.38	99.42		99.37
Apr	99.97	99.95	99.94	99.92		99.95
May	99.55	99.53	99.51	99.49		99.52
Jun	99.54	99.52	99.50	99.47		99.51

Table A25: Rural CPI Monthly & Average Seasonal Factors						
Period	FY17	FY18	FY19	FY20	FY21	Average
Jul	100.22	100.24	100.24	100.25	100.26	100.24
Aug	100.14	100.09	100.05	100.00	99.96	100.05
Sep	100.41	100.34	100.29	100.24	100.21	100.30
Oct	101.14	101.15	101.17	101.19	101.22	101.18
Nov	101.19	101.23	101.27	101.31		101.25
Dec	100.23	100.29	100.33	100.36		100.30
Jan	99.99	100.02	100.03	100.05		100.02
Feb	99.31	99.35	99.39	99.43		99.37
Mar	99.45	99.47	99.50	99.54		99.49
Apr	99.70	99.67	99.65	99.61		99.66
May	99.02	98.99	98.95	98.92		98.97
Jun	99.19	99.15	99.12	99.07		99.13

Table A26: National CPI (Month-on-Month) Original & Seasonally Adjusted					
Original Series					
Period	FY17	FY18	FY19	FY20	FY21
Jul	1.44	0.57	1.51	1.83	2.50
Aug	-0.36	0.15	-0.31	1.64	0.63
Sep	0.42	0.69	-0.03	0.77	1.53
Oct	0.93	1.09	2.12	1.81	1.70
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	0.82	
Seasonally Adjusted Series					
Jul	0.53	-0.38	0.53	0.83	1.46
Aug	-0.31	0.25	-0.18	1.80	0.80
Sep	0.30	0.57	-0.14	0.65	1.41
Oct	0.41	0.53	1.50	1.15	0.99
Nov	0.48	0.65	-0.15	1.30	
Dec	0.42	0.95	0.66	0.64	
Jan	0.45	0.14	0.35	2.08	
Feb	1.11	0.33	1.43	-0.52	
Mar	0.96	0.14	1.92	-0.03	
Apr	0.23	0.64	0.33	-1.16	
May	0.01	0.99	1.14	0.86	
Jun	0.11	0.77	0.42	0.77	

Table A27: Urban CPI (Month-on-Month) Original & Seasonally Adjusted Series					
Original Series					
Period	FY17	FY18	FY19	FY20	FY21
Jul	1.47	0.59	1.41	1.98	2.15
Aug	-0.46	0.20	-0.31	1.46	0.81
Sep	0.32	0.42	-0.08	0.75	1.26
Oct	0.79	0.89	2.23	1.59	1.27
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	0.69	
Seasonally Adjusted Series					
Jul	0.61	-0.30	0.51	1.07	1.22
Aug	-0.43	0.27	-0.24	1.55	0.91
Sep	0.29	0.39	-0.10	0.72	1.22
Oct	0.41	0.48	1.78	1.11	0.76
Nov	0.51	0.66	-0.07	1.00	
Dec	0.44	1.05	0.68	0.64	
Jan	0.69	0.10	0.39	1.65	
Feb	1.08	0.40	1.37	-0.63	
Mar	0.94	0.23	1.83	0.09	
Apr	0.32	0.77	0.27	-1.18	
May	0.10	0.95	1.11	0.73	
Jun	0.21	0.73	0.35	0.71	

Table A28: Rural CPI (Month-on-Month) Original & Seasonally Adjusted					
Original Series					
Period	FY17	FY18	FY19	FY20	FY21
Jul	1.39	0.54	1.67	1.60	3.02
Aug	-0.21	0.07	-0.30	1.91	0.35
Sep	0.57	1.10	0.04	0.79	1.95
Oct	1.15	1.40	1.96	2.17	2.35
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	1.02	
Seasonally Adjusted Series					
Jul	0.42	-0.51	0.56	0.45	1.80
Aug	-0.14	0.22	-0.10	2.18	0.65
Sep	0.31	0.84	-0.20	0.55	1.70
Oct	0.42	0.59	1.08	1.22	1.33
Nov	0.43	0.64	-0.27	1.75	
Dec	0.39	0.80	0.64	0.65	
Jan	0.09	0.19	0.28	2.72	
Feb	1.15	0.23	1.52	-0.35	
Mar	0.98	0.00	2.07	-0.21	
Apr	0.10	0.44	0.43	-1.15	
May	-0.13	1.04	1.17	1.04	
Jun	-0.05	0.84	0.54	0.87	

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

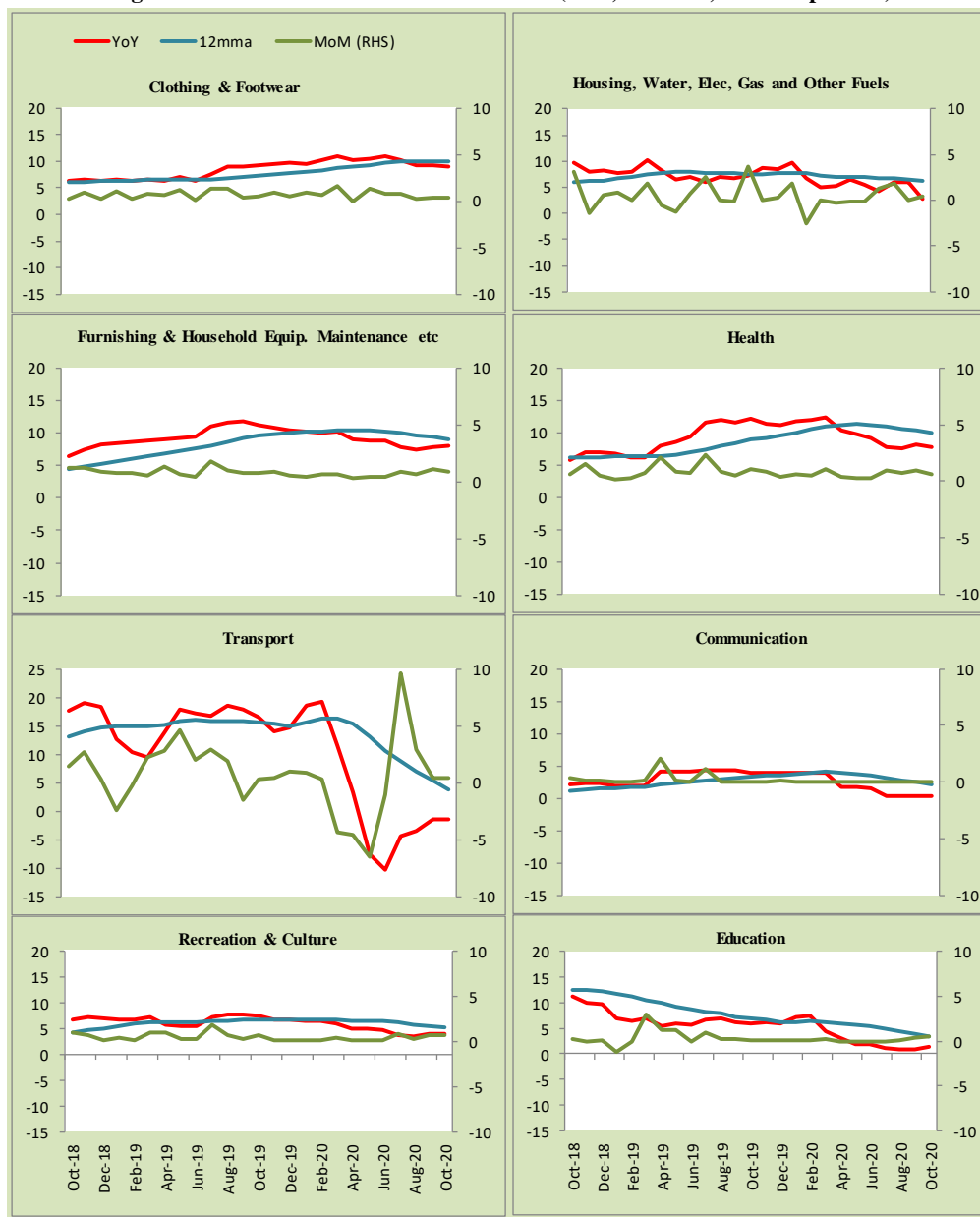


Figure A2: Urban CPI Non-food Inflation (YoY, 12MMA, MoM in percent)



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

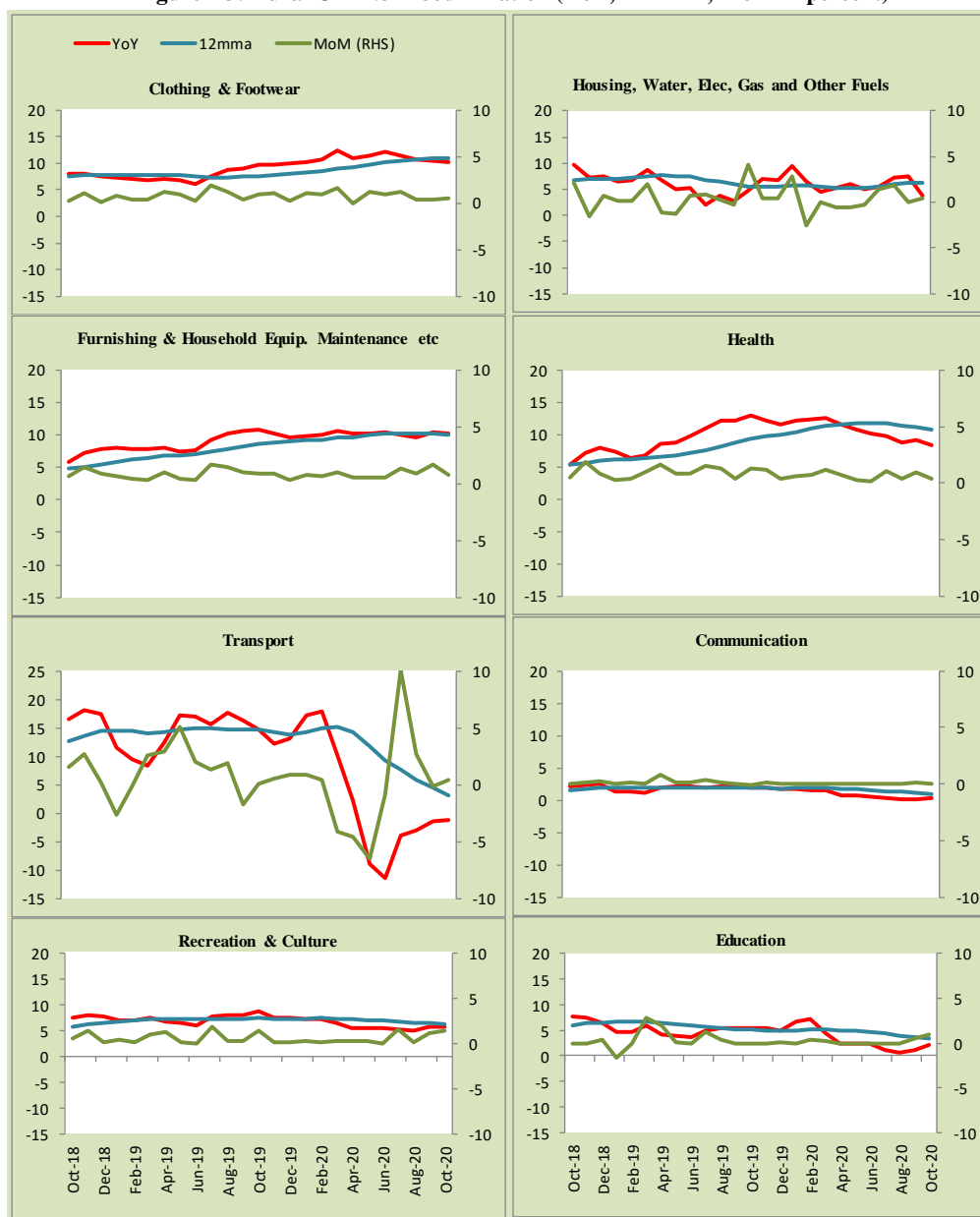
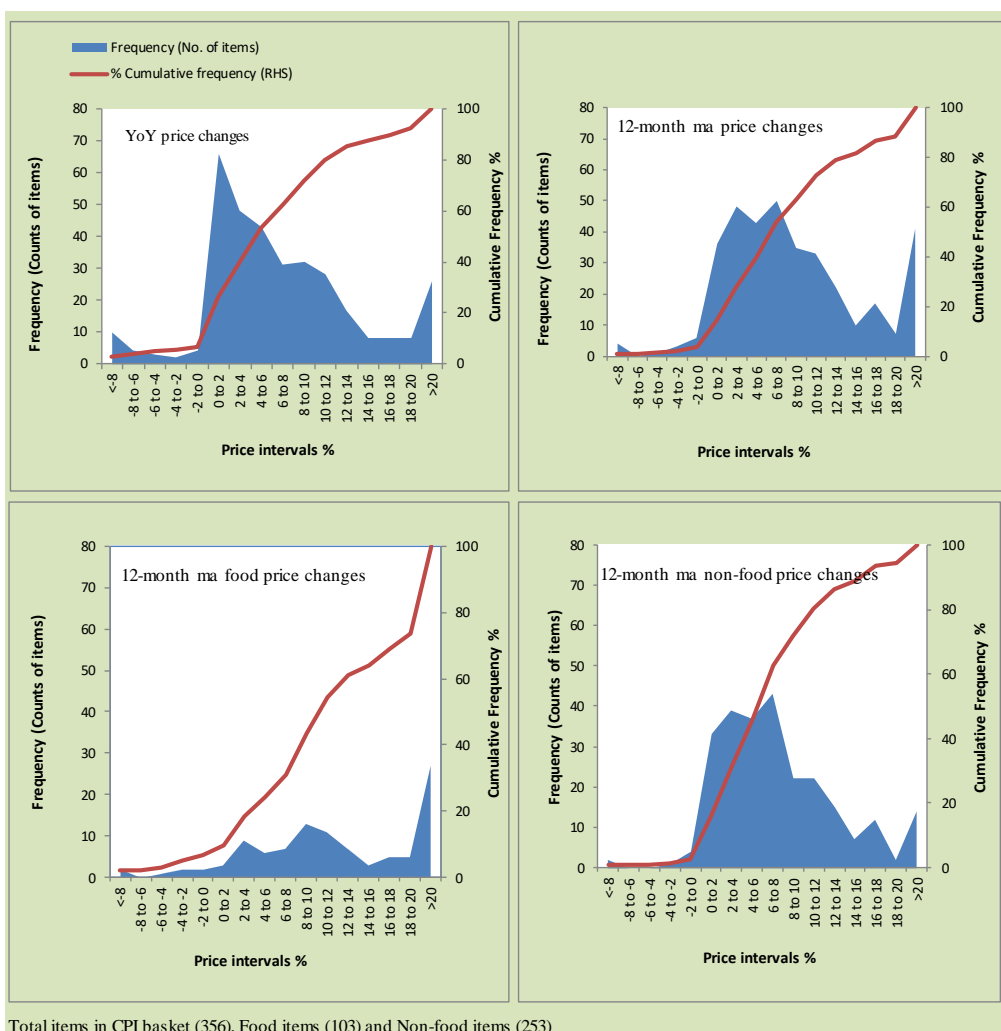


Figure A4: Frequency Distribution of Price Changes of Urban CPI Items (YoY)



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

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

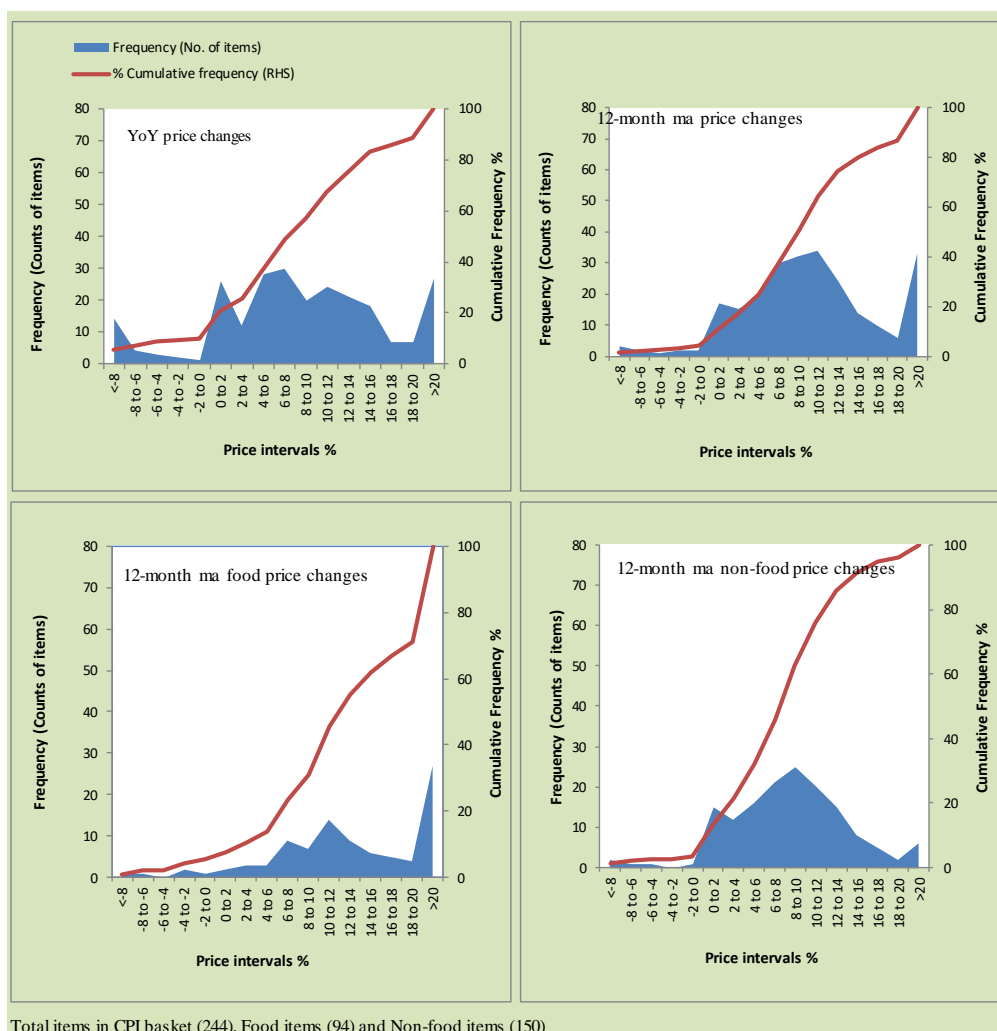
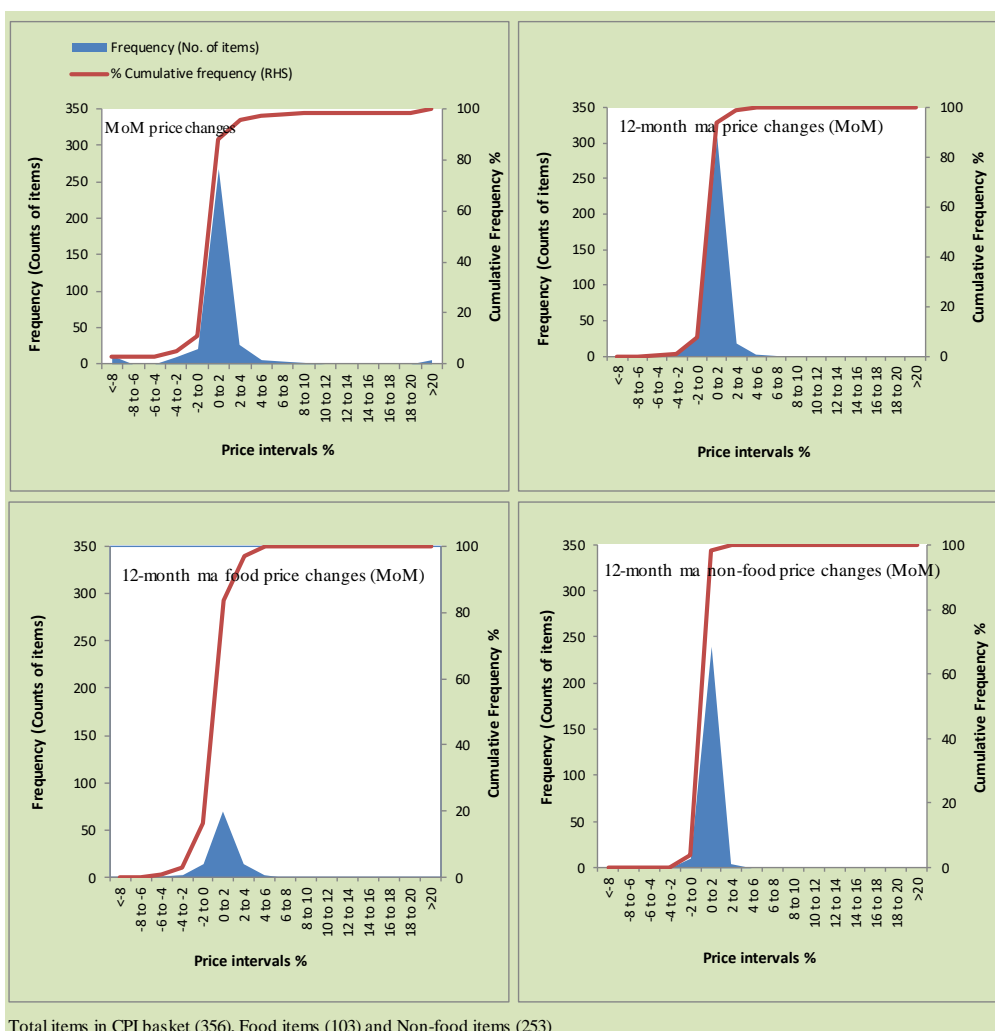


Figure A6: Frequency Distribution of Price Changes of Urban CPI Items (MoM)



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)

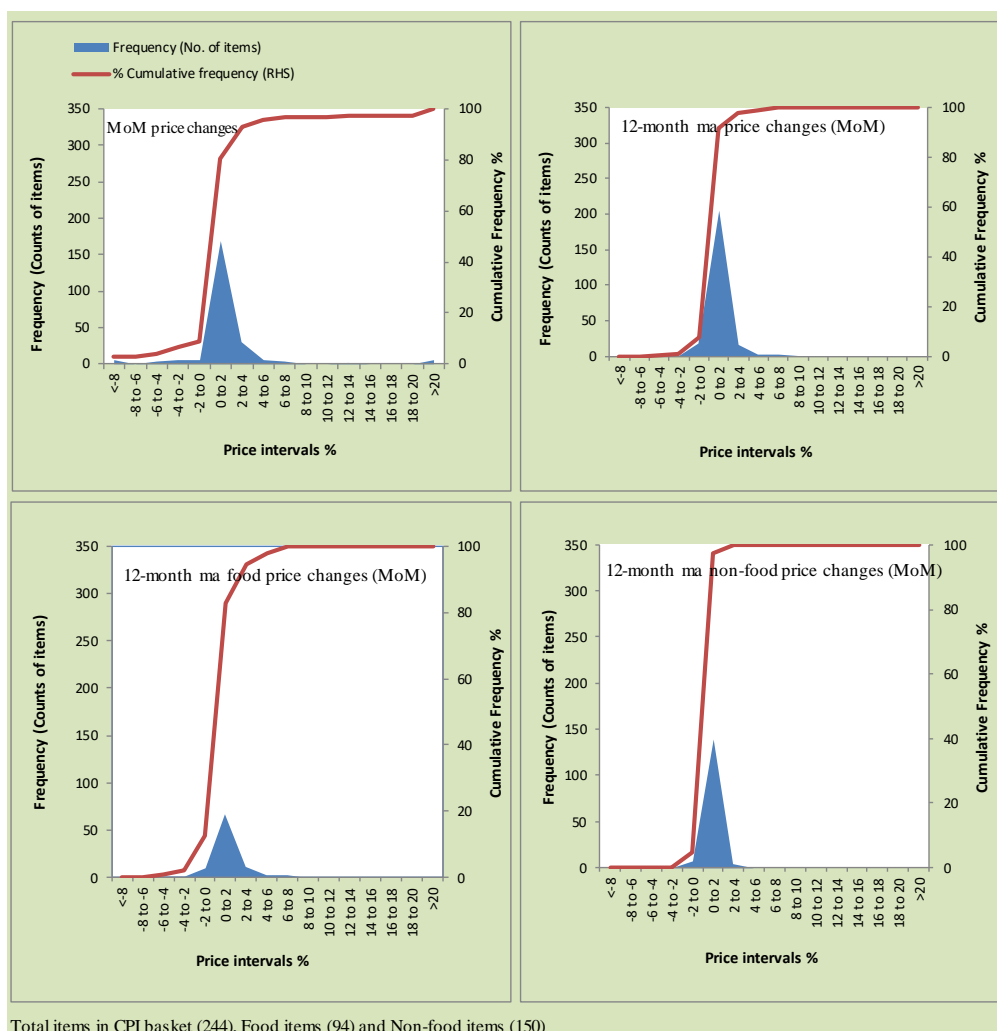
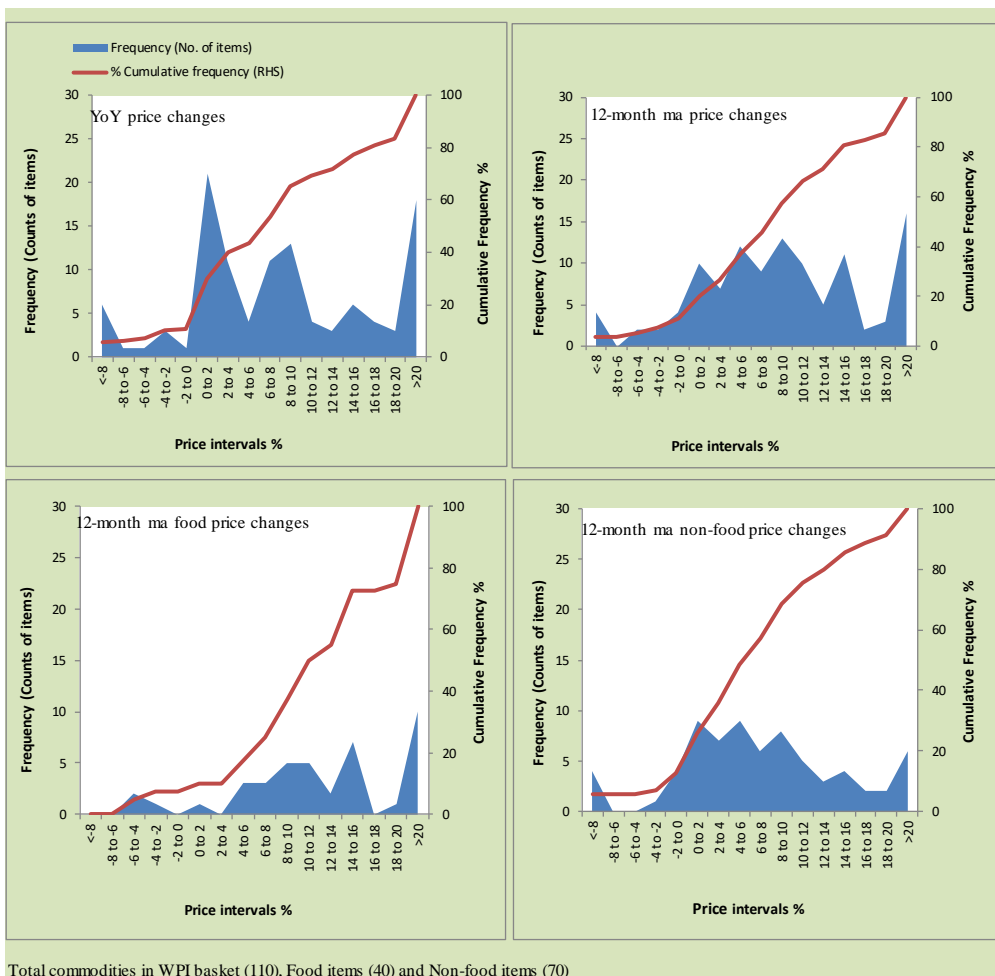


Figure A8: Frequency Distribution of Price Changes of WPI Commodities (YoY)



Annexure B

Technical Notes, Definitions and Methodologies

a) Technical Notes

1. All the three measures of inflation, viz. CPI (National, Urban and Rural), 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 2015-16.
3. CPI baskets for urban and rural areas contains 356 and 244 consumers' items respectively; WPI basket contains 419 items; SPI contains 51 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.

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:

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

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.