Distributional impacts of inflation in Ethiopia

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Abstract

By computing consumer price indices across low, middle, and high income groups in Ethiopia for the period 2016 -2021, it has been found that high food inflation affects adversely households in the low income group whose food consumption expenditure in the total consumption expenditure is high. Weights for the calculation of the price indices have been calculated using the Ethiopian Household Income, Consumption and Expenditure Survey of the year 2016. The share of food and non-alcoholic beverages in the total consumption expenditure for the low, middle, and high income groups are found to be 63.8 per cent, 55.0 per cent, and 41.7 per cent, respectively. The low income group of household experienced a 7 to 9 percentage point difference in food inflation above the food inflation experienced by high income group during periods of high rate of food inflation between 2020 and 2021.

1. Introduction

Ethiopia had been enjoying a low rate of inflation until 2005 except during drought years such as in 2003. In fact, food price defilation was observed following bumper harvests between 1998 and 2002 to the disadvantage of rural farmers. Inflation in the country begun to soar since 2005 due to a combination of multiple factors such as purchase of grains by the government at pre-set prices, accommodative expansionary policy, and devaluation of the domestic currency, Birr, against the US dollar. The rise in prices was compounded by the global financial crises observed in 2008. A month to month annual inflation that was registered in the Ethiopia in July 2008 remained the highest rate of inflation in the country after 1991/92. The period between 2013 and 2017 was characterized by single digit non-accelerating rate of inflation. The rise in non-food prices that was observed in 2018 was further strengthened by the upsurge in food prices the following years. Food and non-food inflation rates in the month of February 2022 reached 41.9 per cent, and 22.9 per cent, respectively, constituting to a general rate of inflation of 33.6 per cent.

Figure 1: Trends of inflation in Ethiopia
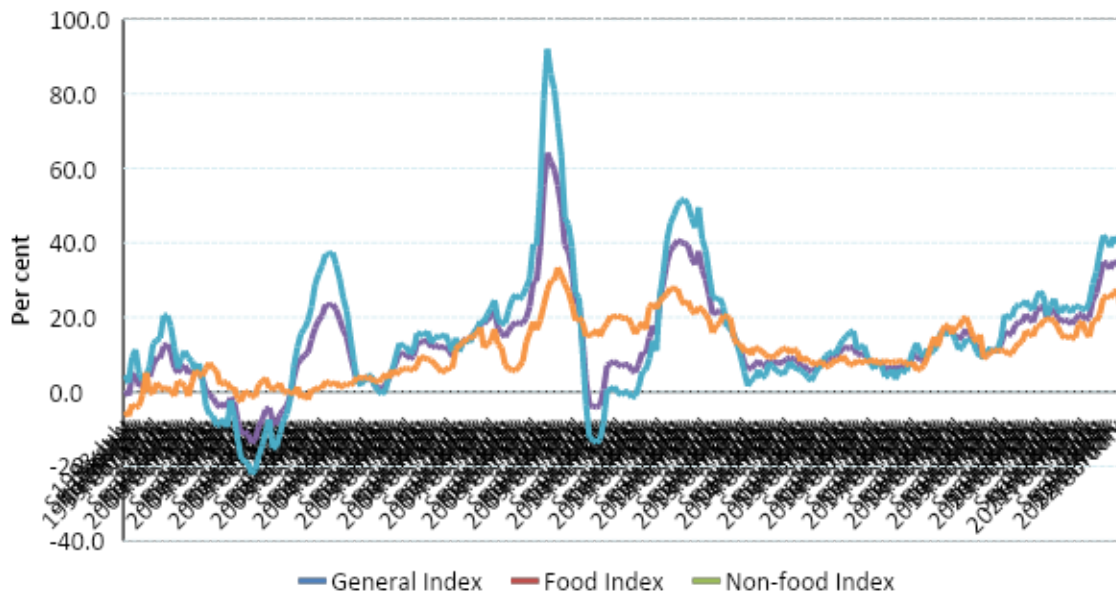
Source: Authors' computations using data from Central Statistical Services (CSS) of Ethiopia

Until recently, demand-driven growth accompanied by expansionary monetary policy was to blame for the seemingly stubborn high inflation in the country. The recent phenomenon of inflationary pressure is believed to have been a cumulative effect of a series of supply side shocks and demand management policies. Empirical identification of drivers of inflation in this particular case is in itself a compelling task.

Another interesting aspect of a rising inflation such as this is its redistribution effect on consumers. As it can be observed in Figure 1, non-food inflation is relatively stable and usually lower than that of food inflation. In contrast, periods of high inflation in Ethiopia are mainly associated with high rate of inflation in food prices. This may imply that inflation impact households who spend a larger proportion of their income on food more severely than households who allot a larger portion of their income on on-food items. The report by the Central Statistical Services (CSS) of Ethiopia of the consumer price index (CPI) is based on the aggregate share of commodities in the total consumption expenditure as a weigh. Based on the 2016 Ethiopian Household Income, Consumption and Expenditure (HICE) survey, the share of

households' expenditure on food and non-alcoholic beverages out of their total expenditure is estimated to have been 53.5 per cent. In the capital, Addis Ababa, household expenditure on food and non-alcoholic beverages is estimated to have accounted for 43.2 per cent of their total consumption expenditure.

It is difficult to investigate the impact of inflation on different income groups based on such consumer price indices calculated by using aggregate weights regardless of the level of income of consumers. The purpose of this exercise is to estimate consumer price indices across different income groups and shed light on the possible distributional impact of inflation on households of different income groups.

2. The CSS Methodology

Central Statistical Agency (CSA) conducts a Household Income, Consumption and Expenditure (HICE) survey every five years. The result from this survey is used to identify the goods and services bought by typical consumers or households which should be included in the baskets of goods and services used to monitor price changes. Furthermore, the result from HICE survey is used to determine the weight of the goods and services included in the basket. The weight of specific goods and services is calculated by dividing the total expenditure spent by all households in a region/country on specific goods and services by the total expenditure spent on all goods and services by all households in the region/country. These calculated CPI weights are fixed for each goods and services and stay the same for the next period until the result of the next HICE survey is become available.

CPIs Compiled by Ethiopian Statistical Service the former CSA:

- Addis Ababa CPI (1963 – 1996).
- The 1995/96 Based National CPI.
- The December 2000 based National and regional CPI.
- The December 2006 based National and regional CPI.
- The December 2011 based National and regional CPI.
- The December 2016 based National and regional CPI.

The next CPI will be rebased using December 2022 as base period. HCES survey is done approximately every 5 years and CPI is rebased accordingly. The CPI is publication consists of 9

regions and 2 city administrations. The country level CPI is average of the 11 Regional CPIs. Sidama and the new SW Ethiopia region will be considered in the next CPI re-basing.

Selection of Basket and Weight Assignment

An important factor in constructing a Consumer Price Index is to select the representative basket of goods and services. Generally, the index is based on a sample of items (goods and services) and the choice of what items to be included in the index is not always an easy task. Whatever choice is made, there is a need to ensure that the items (goods and services) are relevant, reliable, representative, and comparable over a period of time. It is desirable that items chosen should be adequate in number and importance and representative of the items in the group. For most practical purposes, items (goods and services) are included in the basket because they are important in their own right or because they are considered as representative of other items in the group. It is expected that changes in the prices of such items are likely to approximate change for all items within the category. Though the procedure for choosing an expenditure cut-off point is on the most part conventional, it is obvious that, resources play some role in this regard.

From the outset, the idea of including all consumption items into the market basket of goods and services is both cumbersome and unnecessarily costly in term of data collection and processing. Furthermore, it doesn't make sense to include an insignificant weight into an index basket which could not move the price relative up or downwards compared to the general market trend. Besides, it is common international practice to apply a suitable expenditure cut-off point to come up with manageable number of items (goods and services).

Keeping the above points in mind, the cut-off points for the determination of the baskets in the December 2016 based indices is 0.05 or above per cent of total household's expenditure for most regional baskets was selected. In some cases, when special items that are common for a specific region are encountered even if, the expenditure weight are less than the cut-off points, that specification can be included in the basket of that region.

The idea of a cut-off point means that the household goods and services whose relative importance fall on or above the relative expenditure shares of the mentioned percentage point are included in the final market basket of goods and services and are used in the construction of the index.

Those falling below these percentage points are excluded from the baskets and their expenditure shares distributed within their respective sub-group classes or items as appropriate.

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The Major Groups in the Ethiopian CPI

The goods and services in the Ethiopian CPI are grouped according to the classification of individual consumption according to purpose (COICOP) with some country specific adjustment. The twelve major groups are:

01. Food and non-alcoholic beverages
02. Alcoholic beverages, tobacco and narcotics
03. Clothing and footwear
04. Housing, water, electricity, gas and other fuels
05. Furnishings, household equipment and routine maintenance of the house
06. Health
07. Transport
08. Communication
09. Recreation and culture
10. Education
11. Restaurants and hotels
12. Miscellaneous goods and services

Computation of Inflation Rates

- 12 months Moving Average: It is calculated as percentage change of the 12 months moving average CPI between the current year and the 12 months moving average CPI of the same period of the previous year.

- Year-on-Year: It is calculated as percentage change of the CPI between the current month and the same month of previous year.

- Month-on-month: It is calculated as percentage change of the CPI between the current month and the preceding month.

3. The Share of Commodities in Total Consumption across Income Groups

Using data from the Ethiopian HICE survey, shares of various groups of commodities in the total household consumption expenditure has been estimated across three income groups: the low, middle, and income group. The share of food and non-alcoholic beverages in low, middle, and high income groups of households in the total household consumption expenditure is estimated to be 63.8 per cent, 55 per cent, and 41.3 per cent, respectively. This variation contrasts from the usual aggregate share of 45.8 per cent for food and non-alcoholic beverages.

The high share of non-food item in the total consumption expenditure for the higher income group (58.3 per cent) and the high share of food in the total consumption expenditure in the low income group (63.8 per cent) have different implications of welfare impact of inflation depending on whether the inflation is driven by food or non-food items.

Table 1: Share of Commodity Items in the Total Household Consumption by Income Group

Item	Share in the total consumption expenditure			
	Lower income group (20%)	Middle income group (60%)	High income group (20%)	All income groups
Food and Non-Alcoholic Beverages	**63.78**	**54.95**	**41.73**	**45.38**
Food	60.43	52.24	39.75	43.2
Bread and Cereals	*29.47*	*20.17*	*9.98*	*12.82*
Meat	*0.38*	*4.52*	*9.63*	*8.21*
Milk, Cheese, and Egg	*0.57*	*1.21*	*1.97*	*1.76*
Oil and Fats	*4.21*	*4.37*	*4.09*	*4.16*
Vegetables and Pulses	*16.82*	*14.52*	*9.18*	*10.64*
Food products (salt, spice, and others)	*6.99*	*5.89*	*3.87*	*4.42*
Non-alcoholic Beverages	3.35	2.71	1.98	2.18
Non-Food Items	**36.22**	**45.05**	**58.3**	**54.62**
Alcoholic Beverages and Tobacco	0.22	0.62	1.80	1.53
Clothing and Footwear	2.95	4.13	4.95	4.72
Housing, Water, Electricity, Gas and other Fuels	15.56	16.74	17.93	17.60
Furniture, Equipment, and Maintenance of the House	4.58	4.62	6.57	6.04
Health	0.65	1.17	1.38	1.32
Transport	2.80	4.04	6.90	6.12
Communication	5.69	5.35	6.09	5.90
Recreation and Culture	0.34	0.42	0.68	0.61
Education	0.80	1.43	1.61	1.56
Restaurants and Hotels	0.31	2.99	6.42	5.47
Miscellaneous	2.00	3.33	3.93	3.76

Source: Authors' computations using data from Ethiopian Household Income, Consumption and Expenditure (HICE) Survey, 2016.

While there are quite a number of commodity items in the HICE, Table 1 presents only groups of items with relatively significant shares in the total consumption.

4. Price Indices, Patterns and Trends of Inflation by Income Group

Prices indices are computed for Addis Ababa for three income groups; the lower, middle, and high income group. Naturally, current and relative prices of common commodities purchased by households of all income groups are the same across income groups. The variation in indices and inflation rates across income groups arise from differences in the share of expenditure by each group of a particular commodity in the total consumption expenditure. Some items of commodities may not be purchased by households in a particular income group.

Since 2019, food inflation exceeded non-food inflation. Between 2019 and November 2021, food, and non-food inflation averaged 26.1 per cent, and 14 per cent, respectively.

Figure 2: Trends and patterns of food and non-food inflation (2017-Nov. 2021)
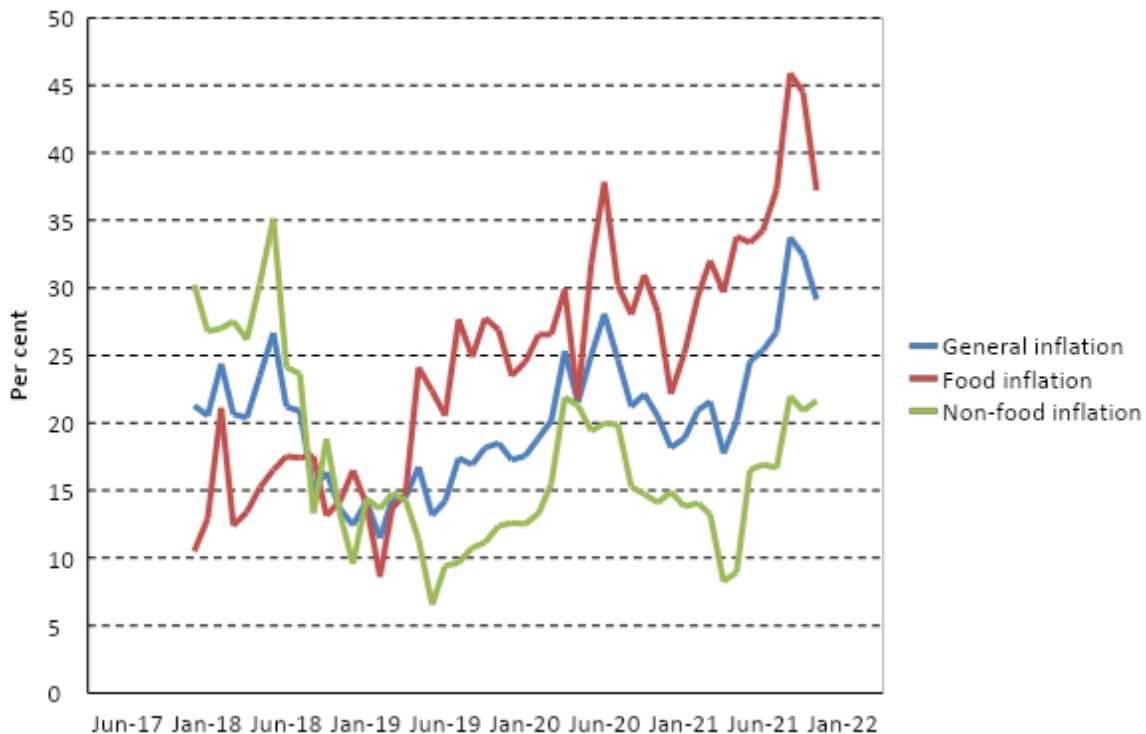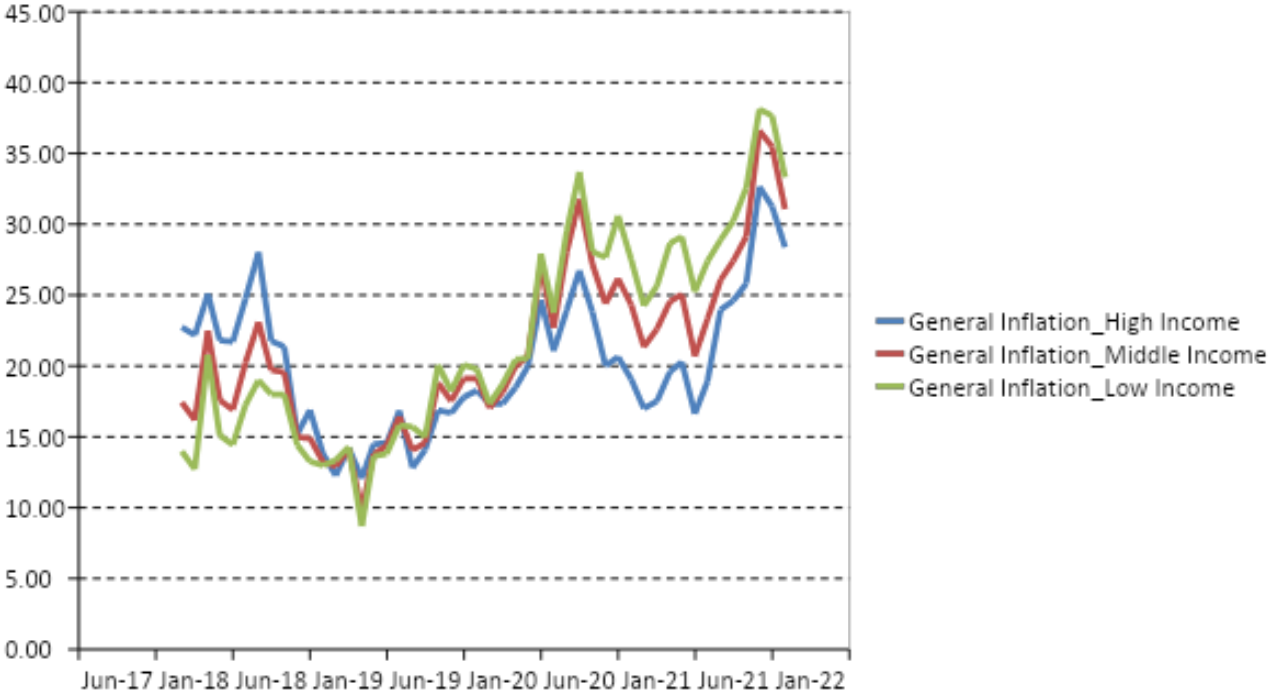

Source: Authors' computations using data from CSS.

The rise in food inflation at a rate greater than that of non-food inflation led to a difference in inflation rate within income groups to the disadvantage of lower and middle income groups compared to high income groups. The average food inflation for the period 2019 – 2021 stood at 26.1 per cent, 25.4 per

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cent, and 24.3 per cent for the low, middle, and high income groups, respectively. While the differences appear to be marginal on a longer period, there were times where such differences were significantly high. For instance, the difference in rates of food inflation between low and high income groups for the period between mid- 2020 and 2021   range from 7 to 9 percentage points (See Figure 3).

Figure 3: Trends and patterns of food and non-food inflation (2017-Nov. 2021)

Source: Authors' computations using data from CSS.

Similar to the pattern in the overall inflation across all income groups, food inflation dominated the upsurge in the general inflation that has been observed since 2019.

Figure 4: Trends of food and non-food inflation among low income groups
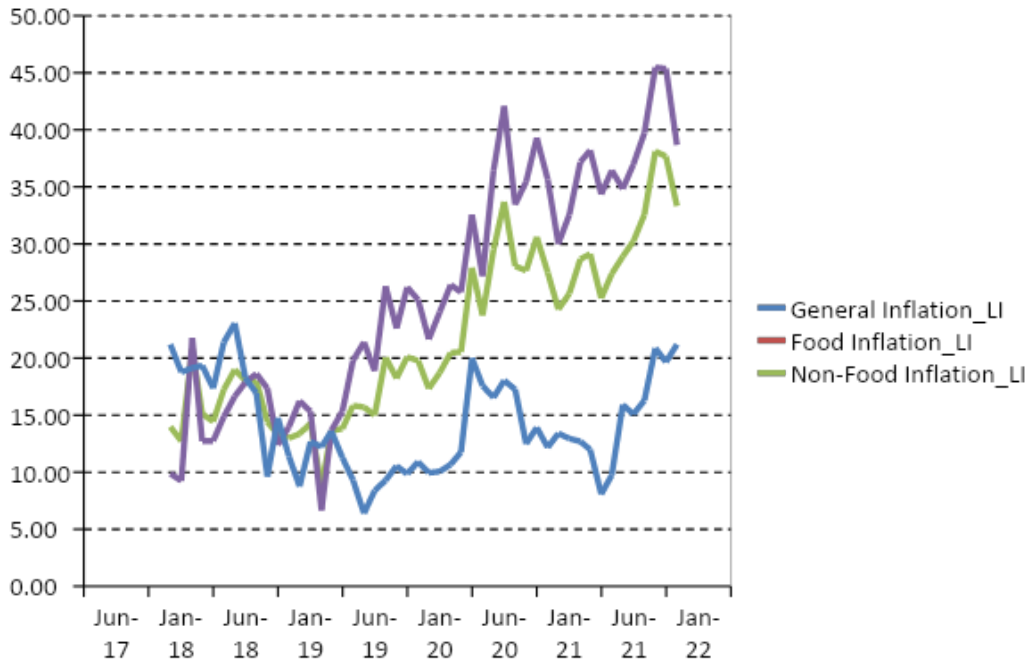
Source: Authors' computations using data from CSS.

Prices rises in food items such bread and cereals, oils and fats, vegetables, food products mainly spices, and non-alcoholic beverages drove overall price level in the low income groups. These food items account for 63.8 per cent of the total consumption expenditure among the low income group. Clothing and footwear, housing, furniture and equipment, as well as transport are among the non-food items that experienced high rate of price rise. The contribution of those later items to the overall inflation is reduced by the lower share of consumption expenditure in the low income group.
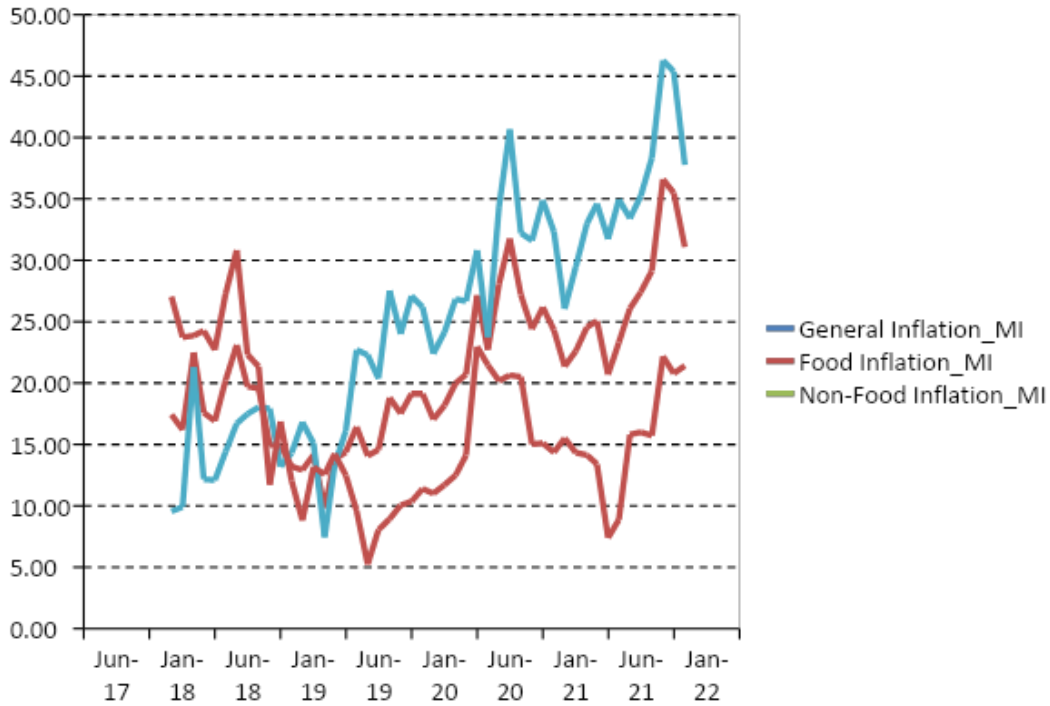
Table 2a: Major Commodity Items with High Inflation Rate among the Low Income Group

Items	Weight	Inflation Rate	
		2016-2018	2019-Nov 2021
All Items	**100**	**15.6**	**21.9**
Food and non-alcoholic beverages	**63.78**	**14.9**	**26.1**
Food	60.43	15.3	26.4
Bread and Cereals	29.47	13.6	24.3
Oils and Fats	4.21	2.15	19.50
Vegetables and pulses	16.82	4.50	19.15
Food products	6.99	73.50	63.72
Non-alcoholic beverages	3.35	8.82	19.38
Non-food	**36.22**	**16.91**	**14.07**
Clothing and Footwear	2.95	9.75	17.85
Housing, Water, Electricity, Gas and other Fuels	15.56	24.02	16.52
Furniture, Equipment, and Maintenance	4.58	22.52	19.35
Transport	2.8	2.20	12.71
Communication	5.69	5.27	1.07

Source: Authors' computations using data from CSS.

Rise in food inflation also dominated the general inflation in the middle income group. Food inflation in the middle income group accelerated from 14.9 per cent during 2017 – 2018 to 25.4 per cent for the period 2019-2021. In contrast, non-food inflation for the middle income group decelerated from 21 per cent to 15.9 per cent over the same period. Given the high share of food and non-alcoholic beverage in the total consumption expenditure of the middle income group (54.95 per cent), the rise in food inflation would adversely affect households in this group more proportionately than those in the high income group.

Figure 5: Trends of food and non-food inflation among middle income groups

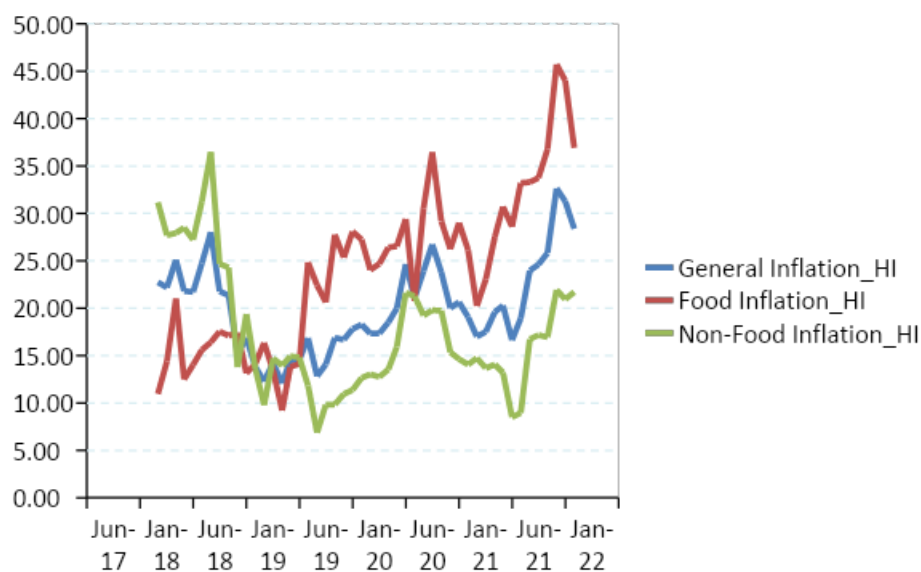Source: Authors' computations using data from CSS.

In the case of middle income group, two commodity items namely meat, and restaurant and hotels are included due to a relatively higher share of consumption expenditure compared to in the low income group in addition to the items already identified in low income groups.

Table 2b: Major Commodity Items with High Inflation Rate among the Middle Income Group

Items	Weight	Inflation Rate	
		2016-2018	2019-Nov 2021
All Items	100	17.6	21.2
Food and non-alcoholic beverages	54.95	14.9	25.4
Food	52.24	15.2	25.7
Bread and Cereals	20.17	13.2	23.4
Meat	4.52	15.11	22.18
Oils and Fats	4.37	4.1	19.5
Vegetables and pulses	14.52	4.4	18.9
Food products	5.89	74.0	64.0
Non-alcoholic beverages	2.71	8.6	18.7
Non-food	45.05	21.0	15.9
Clothing and Footwear	4.13	10.6	16.8
Housing, Water, Electricity, Gas and other Fuels	16.74	34.4	20.3
Furniture, Equipment, and Maintenance	4.62	22.0	18.4
Transport	4.04	2.4	13.8
Communication	5.35	6.0	1.2
Restaurants and Hotels	2.99	25.86	17.21

Source: Authors' computations using data from CSS.

Figure 6: Trends of food and non-food inflation among high income groups

Source: Authors' computations using data from CSS.

A relatively low share of food in in the total consumption expenditure in the high income group helped to shift the impact of high food inflation towards non-food items which face relatively low rate of inflation.

Table 2c: Major Commodity Items with High Inflation Rate among the High Income Group

Items	Weight	Inflation Rate	
		2016-2018	2020-Nov 2021
All Items	100	20.58	20.07
Food and non-alcoholic beverages	41.73	15.42	24.25
Food	39.75	15.79	24.59
Bread and Cereals	9.98	13.19	22.93
Meat	9.63	15.47	21.87
Oils and Fats	1.97	7.07	19.30
Milk, cheese, and egg	4.09	16.26	16.87
Vegetables and pulses	9.18	5.25	18.60
Food products	3.87	74.11	64.07
Non-alcoholic beverages	1.98	7.74	16.18
Non-food	58.3	24.29	17.14
Clothing and Footwear	4.95	11.28	16.71
Housing, Water, Electricity, Gas and other Fuels	17.93	46.40	24.67
Furniture, Equipment, and Maintenance	6.57	21.97	17.41
Transport	6.9	5.84	11.74
Communication	6.09	7.36	1.45
Hotels and Restaurants	6.42	26.65	16.97

Source: Authors' computations using data from CSS.

5. Implications

Policy interventions need to assess the varied level of impact of inflation across income groups. Consumption subsidies, support to productions, and policy interventions to deal with major supply bottlenecks in an attempt to arrest inflation need to prioritize vulnerable income groups.

Impact of inflation may also have geographic dimensions. Further studies and data collections may focus on such dimensions of impact of inflation.

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