

## WHY NSO ESTIMATES OF CPI IS CLEARLY UNDERSTATED

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After a hiatus of two months, MOSPI has released CPI for Jun'20. The combined CPI published at 6.09% for Jun'20 compared to 6.27% in May'20 (Imputed). Due to non-availability of data the index for the sub-groups, say for example 'Clothing & Footwear' group were imputed by simply using the last quoted price of "Clothing & Footwear" scaled up by the relative increase in CPI of the current month / June to that of the last observed month / March. However, this is a pure statistical exercise by NSO without even understanding the problem that distorts and even underreports the headline CPI.

With lockdowns, the fixed basket on which inflation is calculated is totally irrelevant as many of those typical items, particularly services are no longer available / disappearing product problem. For example, in the Indian context, the share of products within the Services category with missing prices in the headline CPI was 22.4% in April 2020 as imputed by NSO. Hence extrapolating price trends of overall CPI basket (which were largely driven by food and fuel sub groups) to key Core components such as Clothing, Footwear, etc. by NSO is puzzling and incorrect. This has resulted in a paradoxical problem of significant jump in prices in commodities like Clothing and Footwear and even intoxicants in April when the country was in the midst of the strictest lockdown and these commodities were not even consumed!

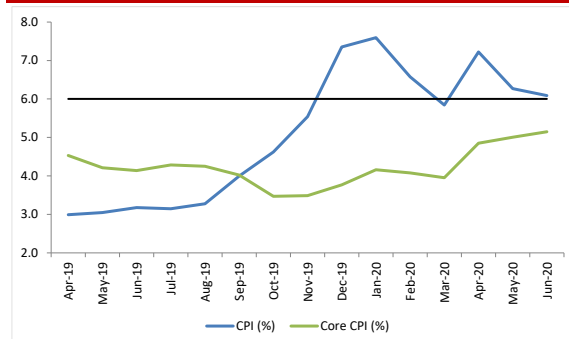
Against this background, we follow the methodology as Cavallo has employed in his paper to estimate headline CPI in 17 countries by constructing a COVID consumption basket for India and estimate CPI inflation again. We begin with the observed trends in consumer expenditure in discretionary and non discretionary items. Our understanding is that the proportion of non discretionary to discretionary card spends that was 65:35 in pre lockdown is now approx. at 80:20 with a pronounced downward bias for discretionary spends. Given this observation, we estimated the shifting consumption expenditures and thereby readjusting the consumer weightages in CPI. **We call this measure SBI Computed COVID CPI. Based on our new weights, as per our SBI Computed COVID CPI, the actual headline inflation is much higher than the imputed inflation. Our Jun'20 inflation is at 6.98% , almost 90 bps higher than the imputed inflation of NSO. The Pandemic has also introduced an outlet bias, as a large share of total spending moved online that is charging a mark up over off line prices. Most retailers in these platforms tend to have higher prices than in their physical stores. Since this is not accounted in the data collection methodology used by the NSO, the change in spending outlets could cause another downward bias in the headline CPI as computed by NSO. If NSO considers online prices, there would be further 10/15 bps impact on CPI inflation.**

The pandemic accelerated the recent global trend of disinflation. The average annual inflation rate plunged from 3% in Feb'20 to 1.6% in Apr'20. With the onset of the COVID-19 pandemic, India along-with the majority of middle and low-income countries has been however experiencing rising consumer prices. In the case of India we believe that inflation will remain at elevated levels for the next few months due to supply side constraints and labor shortage, rather than due to fiscal deficit and external factors, except crude. However, the situation is extremely volatile and uncertain and the previously published numbers can see revisions. In this context, the forthcoming MPC decision will be a hard one to make. However, with real consumption set to be adversely impacted, Governments and Central Banks in respective countries will be more concerned with the welfare implications of the pandemic on real consumption. To that extent, while an August rate cut looks difficult / touch and go, we still believe RBI could be looking through the CPI numbers through the cycle and not at a point in the cycle!

### ESTIMATING HEADLINE CPI THROUGH SHIFTING CONSUMPTION EXPENDITURES DURING LOCKDOWN

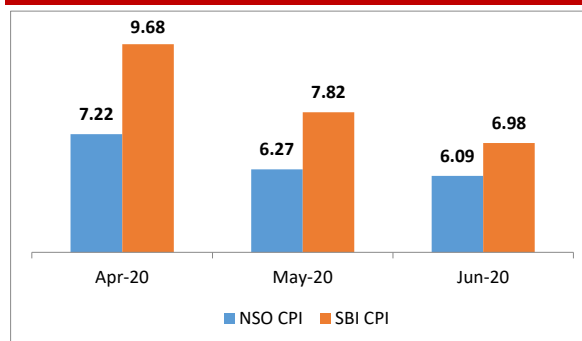
- ◆ Owing to the constraints generated due to COVID-19, MOSPI has been publishing limited data on the inflation. After a hiatus of two months, MOSPI has released CPI for Jun'20. The combined CPI published at 6.09% for Jun'20 compared to 6.27% in May'20 (Imputed). For Jun'20, the NSO had collected prices from 1030 urban markets (normally: 1114 markets) and 998 villages (normally: 1181 villages). The more than 6% CPI is largely due to double digit inflation rates in protein items like Pulses and products (16.68%), Meat and Fish (16.22%), Oils and Fats (12.27%).
- ◆ Non-availability of data has led to NSO estimating the various components of CPI Inflation through the imputation methodology in which the General CPI, calculated on the basis of the sub-group indices where data was available, was used for imputing the indices for the Sub-groups/Groups other than 'Food & Beverages' where price data was not captured, like the Core Components. **Thus, the index for the sub-groups of 'Clothing & Footwear' group and 'Miscellaneous' group were imputed by simply using the last quoted price of "Clothing & Footwear" scaled up by the relative increase in CPI of the current month / June to that of the last observed month / March. However, this is a pure statistical exercise by NSO without understanding the problem that distorts and even underreports the headline CPI.**
- ◆ There have been studies by Diewart and Fox (NBER, May 2020) and Cavallo (NBER, June 2020) that clearly enunciates how lockdown of economic activity implies there is a massive **disappearing products problem**. All countries base the construction of their Consumer Price Index (CPI), the main index of inflation, on a fixed basket of goods that people typically buy. But with lockdowns, this fixed basket is totally irrelevant as many of those typical items, particularly services are no longer available. For example, in the Indian context, the share of products within the Services category with missing prices in the headline CPI was 22.4% in April 2020 as imputed by NSO.
- ◆ Hence extrapolating price trends of overall CPI basket (which were largely driven by food and fuel sub groups) to key Core components such as Miscellaneous and Clothing, Footwear by NSO is puzzling and incorrect. **This has resulted in a paradoxical problem of significant jump in prices in commodities like Clothing and Footwear and even intoxicants in April when the country was in the midst of the strictest lockdown and these commodities were not even consumed.**

NSO CPI and Core-CPI (%)



Source: SBI Research

NSO CPI vis-à-vis SBI COVID CPI (%)



Source: SBI Research

- Against this background, we follow the methodology as Cavallo has employed in his paper to estimate headline CPI in 17 countries by constructing a COVID consumption basket for India and estimate CPI inflation again. In effect, the sudden unavailability of many goods and services affects the measurement of real consumption; that is, *quantity indexes* for household consumption. In particular, consumers are now spending almost no amount on transportation, hotels, restaurants, and recreation that are experiencing significant decelerating inflation while expenditures on food and other groceries have increased in both absolute and relative terms, which are witnessing rapid inflation because of supply bottlenecks.
- We begin with the observed trends in consumer expenditure in discretionary and non discretionary items. Our understanding is that the proportion of non discretionary to discretionary card spends that was 65:35 in pre lockdown is now approx. at 80:20 with a pronounced downward bias for discretionary spends. Given this observation, we estimated the shifting consumption expenditures and thereby readjusted the consumer weightages in CPI. We call this measure **SBI Computed COVID CPI**. In principle, we readjusted the weights based on the changing consumer habits during lockdown. The weights of non discretionary items were concomitantly increased while weights of discretionary items reduced almost to zero.
- Based on our new weights, **as per our SBI Computed COVID CPI**, the actual headline inflation is much higher than the imputed inflation. **Our Jun'20 inflation is almost 90 bps higher than the imputed inflation of NSO.**

**IMPACT OF ONLINE PRICES ON HEADLINE CPI**

- The Pandemic has also introduced an outlet bias, as a large share of total spending moved online that is charging a mark up over off line prices. For example, the use of online delivery platforms, such as Goffers, Nature Basket, Licious etc, has soared during the Pandemic. Most retailers in these platforms tend to have higher prices than in their physical stores. Since this is not accounted in the data collection methodology used by the NSO, the change in spending outlets could cause another downward bias in the headline CPI as computed by NSO. If NSO considers online prices, there would be 10/15 bps impact on CPI inflation.
- During this crisis, consumers have spent a lot of time at home and online – and have become comfortable doing a set of activities online. So, people are also shopping essential items from e-commerce platforms. Interestingly, before COVID-19, the prices of e-commerce outlets were much lower than the MRP. However, due to the rise in demand and less supply, now there is no/less bulk discounts in e-commerce. So, the price difference between e-commerce platforms and Kirana stores has converged.
- COVID-19 is going to impact the consumer behavior. According to a research report, consumers are set to change their share of wallet across various retail options with 54% indicating that they would reduce spends in outlets in malls and 46% reducing spends on high street stores while 35% saying that they would increase their spends online or nearby stores. 41% percent of respondents to an April study by Ipsos and USA Today said they had shifted more of their shopping from physical stores to online, compared with 13% who said the same in March.

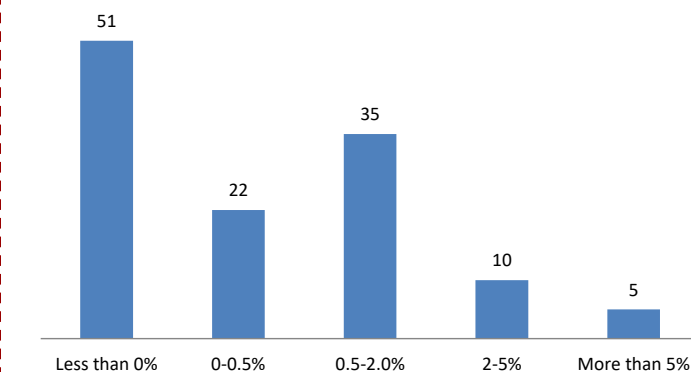
**GLOBAL INFLATION AND CASE FOR INDIA**

- It is interesting to look at the global inflation trend at this juncture also. The COVID-19 pandemic has raised uncertainties about inflation apart from other macro fundamentals. Before the pandemic hit the world economy, the global average trend pointed to a historically low level of consumer inflation. The pandemic accelerated the recent global trend of disinflation. The GDP-weighted average annual inflation rate plunged from 3% in Feb'20 to 1.6% in Apr'20. The supply constraints caused by the disruption of supply chains so far have not given rise to significant inflationary pressures as a global trend. The abrupt decline in the aggregate demand worldwide brought on by the containment measures implemented to halt the spread of the virus (border closures, lockdowns and social distancing) drove the collapse of the prices of oil and fossil fuel-based energy to historic lows, although the prices of agricultural commodities and metals have remained relatively stable in international commodity markets.

CPI Weighted Contribution: NSO vis-à-vis SBI (%)						
Item	Apr-20		May-20		Jun-20	
	NSO	SBI	NSO	SBI	NSO	SBI
<b>Food and beverages</b>	<b>4.74</b>	<b>8.23</b>	<b>3.81</b>	<b>6.48</b>	<b>3.34</b>	<b>5.47</b>
Cereals and products	0.73	1.18	0.69	1.11	0.61	0.98
Meat and fish	0.37	0.48	0.64	0.84	0.66	0.86
Egg	0.04	0.13	0.04	0.12	0.03	0.10
Milk and products	0.63	0.74	0.59	0.69	0.56	0.65
Oils and fats	0.33	0.63	0.36	0.68	0.37	0.70
Fruits	0.08	0.11	0.06	0.08	-0.02	-0.03
Vegetables	1.38	2.34	0.33	0.56	0.12	0.20
Pulses and products	0.47	1.90	0.44	1.77	0.36	1.43
Sugar and confectionery	0.11	0.16	0.06	0.10	0.05	0.07
Spices	0.32	0.45	0.31	0.44	0.29	0.41
Non-alcoholic beverages	0.03	0.00	0.04	0.00	0.05	0.00
Prepared meals, snacks, sweets etc.	0.28	0.10	0.26	0.09	0.26	0.10
<b>Pan, tobacco and intoxicants</b>	<b>0.16</b>	<b>0.03</b>	<b>0.17</b>	<b>0.04</b>	<b>0.27</b>	<b>0.06</b>
<b>Clothing and footwear</b>	<b>0.24</b>	<b>0.01</b>	<b>0.23</b>	<b>0.01</b>	<b>0.24</b>	<b>0.01</b>
Clothing	0.21	0.01	0.20	0.01	0.21	0.01
Footwear	0.03	0.01	0.03	0.01	0.02	0.01
<b>Housing</b>	<b>0.42</b>	<b>0.41</b>	<b>0.39</b>	<b>0.38</b>	<b>0.37</b>	<b>0.36</b>
<b>Fuel and light</b>	<b>0.20</b>	<b>0.31</b>	<b>0.11</b>	<b>0.16</b>	<b>0.18</b>	<b>0.28</b>
<b>Miscellaneous</b>	<b>1.50</b>	<b>0.71</b>	<b>1.60</b>	<b>0.76</b>	<b>1.57</b>	<b>0.82</b>
Household goods and services	0.15	0.02	0.15	0.02	0.09	0.01
Health	0.17	0.12	0.25	0.17	0.26	0.18
Transport and communication	0.45	0.11	0.46	0.12	0.53	0.13
Recreation and amusement	0.09	0.00	0.09	0.00	0.05	0.00
Education	0.25	0.23	0.25	0.23	0.26	0.24
Personal care and effects	0.39	0.23	0.39	0.22	0.45	0.26
<b>All Groups (CPI)</b>	<b>7.22</b>	<b>9.69</b>	<b>6.27</b>	<b>7.83</b>	<b>6.09</b>	<b>6.98</b>

Source: MOSPI; SBI Research

**Consumer Price Change between Feb'20 & Apr'20  
(Number of Countries)**



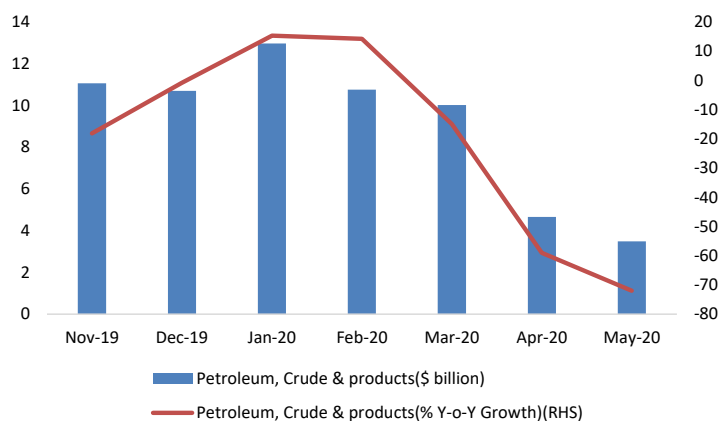
Source: SBI Research

- With the onset of the COVID-19 pandemic, India along-with the majority of middle and low-income countries has been experiencing rising consumer prices. Among 123 countries, consumer prices have increased in 72 countries while declined in 51 countries between Feb and Apr months. Plethora of factors has driven the diverging inflation rates. Some countries are experiencing a price decline due to the plunge in international energy prices and the relatively stable price of food items while other countries have been observing varying degrees of rising domestic price for food items. In India the push has been due to elevated food prices.

#### MACROECONOMIC METRICS AND INFLATION

- Balance of Payments:** In the case of India, the import basket is dominated by oil imports which were around \$10.7 billion in Dec'19 and which came down to \$3.5 billion in May'20. The reduced crude demand due to lockdown and falling crude prices, negated the impact of a strengthening Dollar vis-à-vis Rupee. The falling crude has created the expectation of a current account surplus and with improved capital inflows and a sizeable RBI Forex buffer, Rupee is expected not to depreciate to a great extent. There is no balance-of-payments constraint as such. So, imported inflation is not going to be a major challenge, as Rupee is expected to be range bound.
- Crude Oil Prices:** The rise and fall of global crude oil prices has different impact on headline CPI in India and the impact is higher when crude prices decline than the rise in prices. The petrol and diesel price has gone up across the country since June 7, when the daily revision of prices started after a gap of 82 days due to Covid-19. The cumulative increase since June 7 totals to ₹9.17 for petrol and ₹11.55 for diesel.
- We segregated the last two years into two phases i.e., Jun'17 to Oct'18 (rising crude prices) and Nov'18 to Jun'20 (declining crude prices). The crude oil prices had started rising from \$45 per barrel in Jun'17 to \$80 in Oct'18 and there after it again cooled off to \$40.63 in Jun'20. When we looked at CPI data since the crude prices started soaring up, we found that till crude was \$80 the change in weighted contribution of fuel and light component to inflation was 28 bps. But after Nov'18 to Jun'20, when crude went below \$45, the weighted contribution declined from 49 bps to 18 bps (change is -31 bps). In other words, for \$1 increase in crude there has been 0.8 bps impact on inflation while \$1 decrease in crude prices there has been 1.2 bps impact. EIA expects Brent crude oil prices to average \$41/b during the second half of 2020. Further increase will push the CPI trajectory higher.
- Fiscal Deficit :** The public debt in India is at a sustainable level and our external liabilities are also within limits. However, there is still the question of demand supply gap as net borrowing in India has risen to Rs 18.9 lakh crore. Countries usually avoid, monetization of fiscal deficit can lead to inflation. However, there has been a decline in money multiplier in the Indian context. Thus it is unlikely that a direct monetization if used as a policy option will have any inflationary consequences given the stagnant demand.

#### Import of Petroleum, Crude & products



Source: SBI Research

#### Fuel Statistics in CPI during Jun'17-Jun'20

	Jun'17 (Min)	Oct'18 (Max)	Difference (Oct'18-Jun'17)	Nov'18	Jun'20	Difference (Jun'20-Nov'18)
Wt. Cont. of Fuel and Light on CPI	0.29	0.57	0.28	0.49	0.18	-0.31
Average Crude oil Prices (\$/bbl.)	46.56	80.13	33.58	65.40	40.63	-24.77
Impact	0.8 bps for 1\$			1.2 bps for 1\$		

Source: MOSPI & SBI Research

#### WAY FORWARD

- India's macro fundamentals and domestic situation are quite different compared to its peers. In the case of India we believe that inflation will remain at elevated levels for the next few months due to supply side constraints and labor shortage, rather than due to fiscal deficit and external factors, except crude. However, the situation is extremely volatile and uncertain and the previously published numbers can see revisions. The limitations in the surveys has again been highlighted in the present situation.
- In this context, the forthcoming MPC decision will be a hard one to make. However, with real consumption set to be adversely impacted in governments and central banks in respective countries will be more concerned with the *welfare implications* of the pandemic on real consumption. To that extent, while an August rate cut looks difficult or could be a touch and go, we still believe RBI could be looking through the CPI numbers through the cycle and not at a point in the cycle.

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