Understanding the Dynamics of Core Inflation of newly created Consumer Price Indices of India

RINALANI PATHAK KAKATI*
RASHMI REKHA MAHANTA**

Abstract

The study examines the relationship between headline and core inflation for the Consumer Price Index (CPI) and evaluates the suitability of the measures of core inflation. By using exclusion based measure two core measures have been constructed for newly created CPIs: CPI (Rural): CPI Rural excluding Food Index, CPI Rural excluding Food and Fuel Index; CPI (Urban): CPI Urban excluding Food Index, CPI Urban excluding Food and Fuel Index; CPI (Combined): CPI Combined excluding Food Index, CPI Combined excluding Food and Fuel Index. Test of Predictability, Test of Volatility and Test of Causality have been performed to find the suitable core measure. The CPI-Urban Excluding Food and Fuel has been found as the best core measure because (a) For all the three time periods (1, 2, and 3 months) the headline CPI-Urban reverted back to the core measure CPI-Urban Excluding Food and Fuel; (b) It has been found to be the least volatile measure; (c) It has unidirectional causality at both lags 1 and 2.

I. Introduction

ONE OF THE most important concepts that economists refer to while discussing inflation dynamics of a country, is the concept of “core inflation”. Every economy generally faces demand and supply-side shocks which might lead to huge variations in relative prices. In such cases, the behavior of headline inflation, i.e. the Consumer Price Index (CPI) or the Wholesale Price Index (WPI) could be deceptive for policy purpose. Therefore, a proper analysis of the price changes as to which price changes are momentary and which are permanent is critical. This is more important because the monetary policy of the central bank operates after a time-interval. If the price increase is due to temporary shocks that could very soon reverse themselves, it might not require any monetary policy action.

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Table X (F)
Granger Causality Test between CPI Combined and CPI Combined Excluding Food and Fuel

<table>
<thead>
<tr>
<th>Lag 1</th>
<th>CPI Combined does not Granger Cause CPI Combined excluding Food and Fuel</th>
<th>1333.07000</th>
<th>0.00000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CPI Combined excluding Food &amp; Fuel does not Granger Cause CPI Combined</td>
<td>0.01092</td>
<td>0.91717</td>
</tr>
<tr>
<td>Lag 2</td>
<td>CPI Combined does not Granger Cause CPI Combined excluding Food &amp; Fuel</td>
<td>753.75100</td>
<td>0.00000</td>
</tr>
<tr>
<td></td>
<td>CPI Combined excluding Food &amp; Fuel does not Granger Cause CPI Combined</td>
<td>0.49836</td>
<td>0.61045</td>
</tr>
</tbody>
</table>

Source: Self Computed

V. Conclusion
The predictability, volatility and causality test of the core measures established that, in case of Core Measures based on CPI, the CPI-Urban Excluding Food and Fuel was the best core measure because
i. For all the three time periods (1, 2, and 3 months) the headline CPI-Urban reverted back to the core measure CPI-Urban Excluding Food and Fuel.
ii. The CPI-Urban Excluding Food and Fuel was found to be the least volatile measure of core inflation, whereas the other measures had quite persistent volatility.
iii. The CPI-Urban Excluding Food and Fuel and CPI-Urban had unidirectional causality at both lags 1 and 2.

References


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Clinton, K, (2006), "Core inflation at the Bank of Canada: A critique", Queen’s University Department of Economics working paper, 1077


Roger, S., (1998), "Core inflation: concepts, uses and measurement" SSRN


### Annexure I

Table A1

Unit Root Test of the Core Measures for CPI(R), CPI (U) and CPI(Comb)

<table>
<thead>
<tr>
<th>Unit Root Test</th>
<th>CPI Rural Ex Food</th>
<th>CPI Urban Ex Food</th>
<th>CPI Combined Ex Food</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Period:</strong></td>
<td>January 2011-December 2015</td>
<td>January 2011-December 2015</td>
<td>January 2011-December 2015</td>
</tr>
<tr>
<td><strong>ADF Test Statistic</strong></td>
<td><strong>R-squared</strong></td>
<td><strong>DW</strong></td>
<td><strong>AIC</strong></td>
</tr>
<tr>
<td><strong>At Level</strong></td>
<td>-1.96845</td>
<td>0.06583</td>
<td>1.99011</td>
</tr>
<tr>
<td><strong>At 1st Difference</strong></td>
<td>-5.28243</td>
<td>0.50138</td>
<td>2.00007</td>
</tr>
<tr>
<td><strong>Source:</strong> Self Computed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Annexure II
Wholesale Price Index

Figure A2.1
The gap between WPI and WPI – Food & Fuel
Series 1- WPI & Series 2- WPI – food & fuel

Figure A2.2
The gap between WPI and WPI – Fuel
Series 1- WPI & Series 2- WPI - Fuel

Figure A2.2
The gap between WPI and WPI – Food
Series 1- WPI & Series 2- WPI - Food

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Annexure III
Consumer Price Index

Figure A3.1
The gap between CPI (R) and CPI (R) – Food
Series S1-CPI-R and S2-CPI(R)

Figure A3.2
The gap between CPI (R) and CPI (R) – Food & Fuel
Series S1- CPI-R and S2-CPI(R)

Figure A3.3
The gap between CPI (U) and CPI (U) – Food
Series S1-CPI(U) and S2-CPI(U)

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Figure A3.4
The gap between CPI (U) and CPI (U) – Food & Fuel
Series S1-CPI (U) and S2-CPI(U)

Figure A3.5
The gap between CPI (Combined) and CPI (Combined) – Food
Series S1- CPI-Combined and S2- CPI (Combined)

Figure A3.6
The gap between CPI (Combined) and CPI (Combined) – Food & Fuel
Series S1-CPI-Combined and S2- CPI(Combined)