Inter-Temporal and Spatial Price Indices for National and International Comparison Programs: The Case of the Philippines

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Presentation Outline

I. Background
II. The Subnational PPP/PLI
III. Some Results and Findings
IV. Conclusions and Way Forward
Background
Motivations

• ICP produces quality benchmark PPP for cross-country comparisons of economic activity and relative price levels
• Demand for more frequent (annual) PPP
• Institutionalization of the ICP at the national, regional and global level (UNSC)

Yet....

• ICP has always been resource-intensive
• Utilities of the ICP outputs at the national level and research have been inadequate
Mainstreaming ICP with CPI

• **Integration of ICP with CPI:** Ideal opportunity for national authorities to consider whether the scope of the CPI should be permanently extended.

• **Main Advantages of having core ICP products in the CPI:** Allow comparability across comparison across region/state/province.

• How feasible is the proposed rolling benchmark for Asian economies (47th UNSC)?

• Are there other ways?
## ICP and CPI: Similarities and Differences

<table>
<thead>
<tr>
<th>Temporal Index (CPI)</th>
<th>Spatial Index (ICP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compare same location at different points in time</td>
<td>Compare different locations at same point in time</td>
</tr>
<tr>
<td>Reference: base year</td>
<td>Reference: base country/region</td>
</tr>
<tr>
<td>Same product each time</td>
<td>Same product each place</td>
</tr>
<tr>
<td>Similar specifications across different outlets (but allows for substitution)</td>
<td>Exactly the same specifications across different outlets</td>
</tr>
<tr>
<td>Composition of product list depends on consumption pattern of the countries</td>
<td>Only one product list for all participating countries in the region</td>
</tr>
<tr>
<td>Loose specifications</td>
<td>Tight specification</td>
</tr>
</tbody>
</table>
Subnational Purchasing Power Parities/Price Level Index
Calculating Subnational PPP/PLI: Major Considerations

- Organization of data for computing subnational PPP
- Determination of the overlapping products
- Subnational Aggregation
Data Requirements

• Expenditure Weights from Household Expenditure Survey (which is the same as the ones used for calculating CPI at the aggregated level)
• Average Prices for each variety by Region from CPI
• Average Prices for each item by region from ICP
Subnational PPP: Steps Followed (PSA)

1. Consolidate price and expenditure data by region/province
2. Construct/Build-up Database
3. Determine total number of varieties by specified item codes (CPI: 12,000+; ICP: 1273)
4. Identify variety overlaps and select varieties that are priced by at least two regions/provinces (CPI: 3,298; ICP: 672)
5. Data editing and validation
6. PPP Calculation
Some Results and Findings
Regional Price Level Indices, Q1 – Q4 2011

Chart 1. Comparative Price Level Indices by Region, Q1 - Q4 2011
Household Consumption Expenditure: Consumer Price Index, Manila Q1 2011 = 1.00

Source: Eileen Capilit, May 2016

Chart 2. Comparative Price Level Indices by Region, Q1 - Q4 2011
Personal Consumption Expenditure: International Comparison Program, Manila Q1 2011 = 1.00

Source: Eileen Capilit, May 2016
### HFCE: Price Level Indices, Q1 – Q4 2011
**Philippines, Manila and Areas Outside Manila**

<table>
<thead>
<tr>
<th>Major Group</th>
<th>ICP PHI</th>
<th>ICP Manila</th>
<th>ICP AOM</th>
<th>CPI PHI</th>
<th>CPI Manila</th>
<th>CPI AOM</th>
<th>ICP &amp; CPI Difference (%) Manila</th>
<th>ICP &amp; CPI Difference (%) AOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERSONAL CONSUMPTION EXPENDITURE</td>
<td>1.00</td>
<td>1.03</td>
<td>0.98</td>
<td>1.00</td>
<td>1.12</td>
<td>0.96</td>
<td>(8.6)</td>
<td>1.9</td>
</tr>
<tr>
<td>01 FOOD AND NON-ALCHOLIC BEVERAGES</td>
<td>1.00</td>
<td>1.05</td>
<td>0.98</td>
<td>1.00</td>
<td>1.06</td>
<td>0.98</td>
<td>(0.9)</td>
<td>(0.1)</td>
</tr>
<tr>
<td>02 ALCOHOLIC BEVERAGES AND TOBACCO</td>
<td>1.00</td>
<td>1.01</td>
<td>1.00</td>
<td>1.00</td>
<td>1.01</td>
<td>1.03</td>
<td>0.1</td>
<td>2.7</td>
</tr>
<tr>
<td>03 CLOTHING AND FOOTWEAR</td>
<td>1.00</td>
<td>1.05</td>
<td>0.98</td>
<td>1.00</td>
<td>1.10</td>
<td>0.97</td>
<td>(4.7)</td>
<td>1.2</td>
</tr>
<tr>
<td>OTHER FUELS</td>
<td>1.00</td>
<td>0.96</td>
<td>1.00</td>
<td>1.00</td>
<td>1.11</td>
<td>0.95</td>
<td>(14.1)</td>
<td>5.5</td>
</tr>
<tr>
<td>AND ROUTING MAINTENANCE OF THE HOUSE</td>
<td>1.00</td>
<td>1.04</td>
<td>0.98</td>
<td>1.00</td>
<td>0.95</td>
<td>1.02</td>
<td>9.5</td>
<td>(3.9)</td>
</tr>
<tr>
<td>06 HEALTH</td>
<td>1.00</td>
<td>1.05</td>
<td>0.98</td>
<td>1.00</td>
<td>0.98</td>
<td>1.01</td>
<td>7.1</td>
<td>2.6</td>
</tr>
<tr>
<td>07 TRANSPORT</td>
<td>1.00</td>
<td>1.04</td>
<td>1.00</td>
<td>1.00</td>
<td>1.50</td>
<td>0.90</td>
<td>(30.6)</td>
<td>11.0</td>
</tr>
<tr>
<td>08 COMMUNICATION</td>
<td>1.00</td>
<td>1.01</td>
<td>1.02</td>
<td>1.00</td>
<td>1.00</td>
<td>0.99</td>
<td>0.9</td>
<td>2.8</td>
</tr>
<tr>
<td>09 RECREATION AND CULTURE</td>
<td>1.00</td>
<td>1.05</td>
<td>0.99</td>
<td>1.00</td>
<td>1.10</td>
<td>0.96</td>
<td>(5.2)</td>
<td>3.1</td>
</tr>
<tr>
<td>10 EDUCATION</td>
<td>1.00</td>
<td>1.28</td>
<td>0.83</td>
<td>1.00</td>
<td>2.79</td>
<td>0.53</td>
<td>(54.1)</td>
<td>56.4</td>
</tr>
<tr>
<td>11 RESTAURANTS AND MISCELLANEOUS GOODS AND SERVICES</td>
<td>1.00</td>
<td>1.05</td>
<td>0.98</td>
<td>1.00</td>
<td>1.09</td>
<td>0.95</td>
<td>(3.8)</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Source: Author's Estimates
Inferences from Previous Studies*

- Use of subnational PPP as deflator for income by region, increases HDI for all regions in 2012
  - Average increase of about 5%
  - Maximum of about 16% for ARMM

- Effect to Philippines’ HDI:
- No. of Region falling into low category
  - HDI: 1 (for all years for both approaches)
  - Income Dimension:
    - Current Method: 10 for 2009 and 2012
    - Proposed Method (Subnational PPP):
      - 8 for 2009 and 6 for 2012

Conclusions and Way Forward
Conclusions

• It is quite possible to integrate ICP with national statistical program.
• Applying ICP concepts and methods allow estimation of across space and time indexes at the national level.
• RPLIs/SPLIs from Philippines’ CPI for some expenditure categories closely approximates the relationships of capital city to national price levels from the 2011 ICP.
• Costs for ICP price surveys can be reduced by data mining from the CPI.
• E.g. For Philippines, ICP price survey for food, and other shop items may be limited to the capital city. CPI relationships of capital to national may be used to calibrate the ICP prices to national average.
Way Forward

• Results are still subject for review and are not considered officials
• The same study must be extended to and verified with other geographically large or culturally diverse economies in the region
• The results of this paper can:
  – serve as an advocacy document for users and stakeholders of the Philippine Statistical Authority
  – strengthen the need for institutionalizing the subnational PPP calculations for improving important policy indicators (such as the HDI)
Way Forward

• Previous research ICP regional initiatives must be reviewed/supported:
  – the PPP Updating which used the combinatorial approach for deriving the core list of items from household and nonhousehold sectors and the collection of prices only at the capital city;
  – the inclusion of ICP core list items in the CPI baskets (or vice versa) following the same SPDs
  – SUT compilation to improve national accounts components of the ICP
  – Conduct Poverty-specific price surveys for PPPs