ICP Task Force on
Country Operational Guidelines
and Procedures

Background Paper on Sub –National PPPs

Luigi Biggeri and D. S. Prasada Rao

March 12,2018

World Bank, Washington, DC

Outline

- Introduction
- Evidence from researches and experiments
- Potential and current uses
- Conceptual framework and collection data organization: Some issues

Introduction - 1

- During the last three decades, much debate about the need for the construction of Sub-National PPPs, but up to now few countries produce official indexes of spatial prices

- Within the ICP, only during the 2011 ICP Round the TAG devoted to the topic a specific agenda item (February 2010)

- In that occasion, a project proposal and the Philippines experiments were presented (Biggeri et al.; McCharty)

- The Governance Bodies of the ICP now have included the Sub-National PPPs topic on the research agenda items as an activity of our Task Force

Introduction - 2

Research topic include:

- Examining the African, Asian and Western Asian experience with sub-national PPPs and formulating guidelines on the use of CPI or ICP product lists and prices to compute sub-national PPPs

- Analysing the temporal consistency of CPI and sub-national PPPs

- Expanding the work on sub-national PPPs to more countries

➢ The Task force in its first meeting decided to write up a background initial document providing a broad introduction and focusing also on actual and potential uses of sub-national PPPs and on how to better sell the idea of ICP PPPs

Evidence from researches and experiments -1

- To compute sub-national spatial price indices, by using CPI data two ways are followed:

1. Computation of sub-national price parities, based only on the data collected for the compilation of CPI, called also *sub-national household consumption PPPs*
2. Computation of complete sub-national GDP-PPPs referred to all the aggregates of GDP

In the first case, also additional data are sometimes collected by using ad hoc survey when suitable CPI data are not available (for example for: clothing, furniture, etc.)

In the second case, the experiments has been carried out implementing a new system of data collection of prices adequate both for CPI and ICP computation, usually conducted under the "supervision" of experts of the ICP Global Office and/or Regional ICP agencies

Evidence from researches and experiments -2

- In both cases the framework and the principles of ICP (comparability, representativeness, methods of aggregation, etc.) to compute PPP are followed

- But there is an important difference:

✓ in the first case the NSOs use easily the national COICOP classification of products without more work and any tentative to link it at the SPD ICP classification of products

✓ in the second case the computation have been done by using the SPD ICP classification and integrating it in the COICOP classification used for CPI. The work is much more but in this case a real integration and synergies between CPI and ICP collection of data are reached.

Evidence from researches and experiments -3

- Another alternative approach to estimate consumer sub-national PPPs is carried out by some researchers. It is based on a demand system model applied to data collected by the Household Expenditure or Budget sample survey (HBS)
- This approach make use of specific unit values. The approach is interesting but not useful to our aims because do not use collected prices with CPI and not all HBS allow to computed the unit values

➢ The most promising approach is to use the conceptual framework provided by the ICP to compile sub-national spatial price indices and/or sub-national PPPs (very good works have been done during the last period and presented at the Task force meetings)

Evidence from researches and experiments -4

- Following this approach we have many advantages, already mentioned, in order to satisfy the requests of ICP, NSOs and National and Sub-national Users
- However the objectives of the three parties **are different:**

- First, may be important to satisfy the needs of the National Users and of the NSOs (to sell better the project) asking for the production of

⇩

Household consumer spatial price indices, **using the national classifications but following the ICP principles**

(NSOs have to do the reengineering the process of collection of CPI data and HBS data)

- Second, the ICP is interested to receive good National GDP PPPs and then may convince the NSOs to use also the ICP framework to prepare the spatial indices and to integrate the collection of data to compile the National PPPs in the data collection for CPI.

➢ Is the Project launched by the European Commission on «Multipurpose Price Statistics» useful at this end?

Potential and current uses - 1

- Potential uses (of the national and sub-national policy makers, economists, etc.)
  - ✓Development and competitiveness analysis
  - ✓Cross sub-national area comparisons of economic data computing the real per capita GDP and for all the sub-National Accounts components
  - ✓Spatial price level analysis, also to check the urban and rural differences
  - ✓Well being, Inequality and poverty analysis
  - ✓Operational policy purposes, i.e. allocation of funds policy intervention to reduce poverty

  and so on
- Current uses (Most are in inequality and poverty analysis)

➢ Now days the poverty analysis are extensively developed at local level by using the **Small Area Estimation (SAE)** methods. See World Bank-EU project

Potential and current uses - 2

- Two main issues are coming from the poverty analysis at local level:

✓ need for spatial price indices at very detailed territorial level (or of a substitute indicator)

✓ need for poverty specific sub-national price indices (considering both their consumer basket and prices payed in the outlets and/or markets where they do the purchases)

➢ More experiments in these two fields are necessary and may be possible in revising the organization of the collection of the CPI data and of the HBS

Conceptual framework -1

- Taking into account the request of ICP governing bodies, we have to prepare the guidelines for the computation of Sub-national GDP PPP.
- However, as clarified before, and taking into account both the main use of the sub national PPPs for economic poverty analysis and in order to better sell the project, we suggest to prepare a project more appealing for the NSOs and national and local policy makers.
- At this end it is important, at the beginning, to ask to the NSOs to compute sub national spatial consumer prices indices, doing the work in the framework of CPI and by using only data collected within the process of compiling CPI, using their classifications, that are already very well knowledge by the users.

Conceptual framework -2

- To do it the NSOs must necesssarily accept to follow the principles of the ICP about the comparability of the products, and so on, and therefore to revise the list of products that must be comparable for all the sub areas, and then the reconciliation of the two classifications (COICOP and SPD) could be more simple

- At the same time, because, as it will be seen later, the NSOs have to reingeneer the collection of data, the integration of the CPI and ICP classifications can be done, but not at the end to compute the sub-national PPPs.

- The reconciliation of the two classification will allow the computation of the national household consumption PPPs for the total country and for each Basic Heading

Conceptual framework -3

- In the ICP frameworks some requirements (principles) have to be satisfied to compute the PPPs: they are the *representativeness* and *comparability for each product or groups of products*. They must be satisfied also in the computation of sub-national spatial consumer price indices
- Though the issues of comparability, representativeness and importance of the products are likely to be less serious issues in the context of sub-national spatial indices in comparison to the computation of the PPP ICP, they need to be considered carefully in making use of the CPI data
- Anyway it seems more important to consider the representativeness and the importance of the expenditures for each item, a principle generally followed by the NSOs
- In the computation of sub-national spatial consumer price indices, the **representativeness have to be satisfied also at the level of sub-areas** chosen

✓ Moreover for multilateral price comparisons, the sub-national spatial consumer price indices should satisfy the property of *transitivity*. Usually in the ICP context the transitivity of the PPPs is satisfied applying the GEKS formula. However, other methods could be follow (Rao et al., 2017).

Conceptual Framework for data collection -1

- For the compilation of the sub-national spatial consumer price indices, that could attract the interest of the NSOs, it is necessary to define their structure, usually done through a **pyramid approach**, to building up the indices at various levels for which the process of CPIs production collects prices and estimates the system of expenditure weights

- Obviously, this would be based on the practices followed by the NSOs, that may be need to be changed

- Traditionally, most of the NSOs mainly use probability or non-probability sampling in the production of the CPI which often can be better viewed as composed by separate surveys, each covering different aspects of the index

This must be take into account, because the application of CPD methods and other methods of aggregation depends of the characteristics of data available

Conceptual Framework for data collection -2

- The framework for the construction of the CPI refers to a kind of ideal *multistage stratified sampling design*.

- The population of items is considered as structured by different hierarchical levels.

- At the first stage, of hierarchical structure, the territory of the country may be partitioned into *geographical areas*, as regions and provinces, and into *local areas* - i.e. municipalities- which may be grouped into different geographic regions, while the *outlets* are the elements of the second level of the hierarchical structure, and the products purchased (prices and quantities) are the elements of the third level

- In the product dimension, the elementary aggregates (considered as product strata in the ideal sampling) are aggregates at different levels, following the COICOP hierarchical classification. In general terms, the Laspeyres based overall CPI may be obtained by successive aggregations of the elementary indices following different 'paths'.

.

Conceptual Framework for data collection -3

- The list of products to be used to compute the spatial indices should be as large as possible considering the detail of CPI data collected, so many different groups of population can be used to compute the indices, and also the reconciliation with the SPD classification will be more easy

- To satisfy the needs of national and local policy makers that want to use the sub-national spatial consumer price indices, three suggestions are important:

✓ Consider the areas as small as possible (local areas)

✓ Compile the PPPs separately for urban and for rural areas

✓ Collect data on prices and expenditures in order to compile also the poverty specific PPPs.

➢ The issues to be faced for the aggregation of the prices data at the BH level and to aggregate the spatial Indices above the BH level, will be discussed in another meeting

THANKS