

United Nations Economic and Social Commission for Western Asia (UNESCWA)

Synergies between CPIs and PPPs and integration of Survey Activities in the Arab Region

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Introduction

Purchasing Power Parities (PPPs) are spatial price relatives computed through the International Comparison Program (ICP) and allowing the spatial comparison of the purchasing powers of different local currencies. The computation of PPPs requires the collection of prices of comparable goods and services between the different regions and countries worldwide. For this purpose, regional household consumption item lists which comprise a set of global and regional items are developed in each region. In order to be able to perform international comparisons, global linking between the different regions is necessary, an exercise which is possible due to the availability of common global items in each regional list. For this reason, global items constitute a larger share of the regional lists than region-specific items.

On the other hand, the Consumer Price Index (CPI) is a temporal indicator compiled on a monthly basis in all countries of the world. The computation of the CPI also requires the collection of prices from a basket of household consumption goods and services. However, since the CPI aims at measuring inflation and cost of living in a single country and is thus used in setting wages and economic policies, it relies on the national representativeness of goods and services in the CPI item list. Therefore, the CPI list comprises only nationally representative items and does not include a subset of globally common items, making comparison between countries ineffective.

Despite the above-mentioned differences, the CPI and PPPs do have some common characteristics which make the integration between their activities not only possible, but highly beneficial. For instance, both require price collection for a specific basket of goods and services, follow the COICOP classification, and can be used in research on poverty, sub-national price comparisons, compensation indices and salary scales, etc.

Western Asia is undertaking different initiatives in the field of CPI-ICP integration and is exploring the numerous benefits resulting from such initiatives both at the national and regional levels. This paper will illustrate the integration activities developed and pursued in Western Asia and will shed light on the benefits ensuing from each activity.

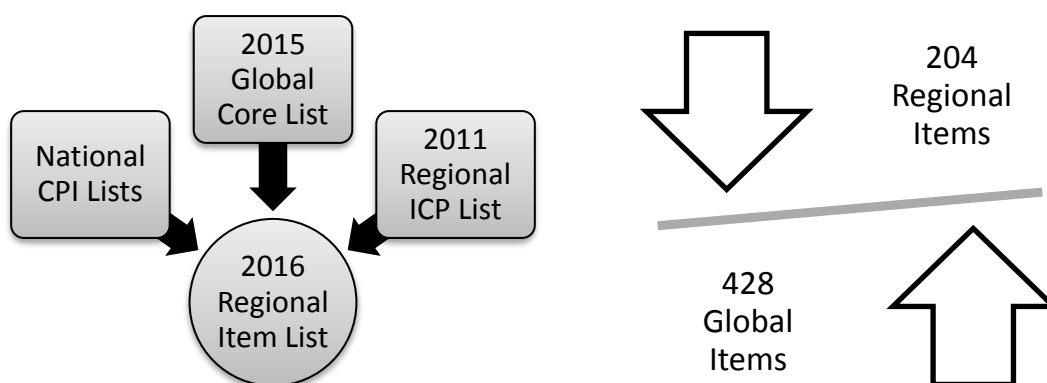
A. Meaning and Scope of the Integration of CPI-ICP Activities in Western Asia Region

The integration between the CPI and ICP activities is a double-folded process: it is often looked at from the perspective of improving the national CPI infrastructure through the incorporation of ICP methodologies; nevertheless, the CPI-ICP integration is of bilateral nature, as both CPI and ICP activities can be improved as a result of the synergy and integration of their processes.

In Western Asia, the focus has been directed towards the integration and harmonization of the ICP and CPI activities for the past 2-3 years as it presents opportunities for growth and improvement of CPI practices as well as for the regular production of PPPs. This section will describe the different initiatives undertaken in Western Asia region in the scope of the CPI-ICP integration, and the benefits arising from each activity.

1. Use of CPI lists for the construction of a regional product list:

After the success of the 2011 ICP round, Western Asia aspired to continue the production of PPPs on a more frequent basis, even with the absence of a global ICP round. For this purpose, in 2016, Western Asia implemented a regional round for PPP production, consisting of actual data collection of household consumption and non-household consumption surveys. Therefore, a new regional household consumption product list was constructed; this regional list was constructed by incorporating the national CPI product lists of the participating member countries, the updated global core list, and the previous regional product list used in the 2011 ICP round. The 2016 regional product list consists of 632 items in total, 428 of which are common with the updated global core list and the remaining 204 items specific to Western Asia. Out of the 204 regional items, 109 were available in 2011 while 95 items were newly introduced to the list. The global items constitute the major share of the total items in the regional list, thus ensuring and facilitating the linking of Western Asia PPP results with those of other regions for global comparison. Structured product descriptions were added for each item after meeting with the member countries to ensure the availability of required specifications and consistency in the products priced between countries.



This integration between the CPI and ICP activities in the construction of the 2016 regional product list strengthens the link and connection between the ICP list and the national CPI lists, increasing representativeness and comparability of the items in the regional product list across countries. Thus, the overlap in the regional product list and national CPI lists achieved through the incorporation of items existing in member countries' CPI lists into the ICP regional product list renders data collection easier for the national statistical offices. This integration activity paved the way for the implementation of a regional PPP production round and the production of more frequent PPPs, showing how both the CPI and ICP complement each other and how the infrastructure of each can benefit from the methodologies of the other through the bilateral integrating nature between the two.

2. Use of CPI data in the production of PPPs:

Capitalizing on the experience gained from previous ICP rounds, Western Asia aspired to continue the production of annual PPPs in the interim period between different ICP rounds through a combination of actual data collection and data extrapolation/retrapolation in order to construct a continuous PPP time series with no gaps. The extrapolation/ retrapolation methodology developed by Western Asia's ICP team replaces actual data collection with the use of CPI data for the computation of household consumption prices, thus ensuring integration between CPI and ICP activities.

This methodology ensures the continuous production of PPPs and was first applied in Western Asia after the end of the 2011 ICP round for the computation of PPPs for 2012 and 2013, and was then revisited after its previous success for computation of 2014-2015 prices in the framework of the 2016 regional round for the production of PPPs. However, in order to maintain accuracy and quality of PPPs, this methodology is only employed for the two years following/ preceding an actual data collection round.

The extrapolation/ retrapolation methodology consists in the use of quarterly national CPI data at the most detailed level judged appropriate by the regional office – product level when the ICP item is matched in the CPI list, basic heading level when the ICP product is not available in the CPI list, and an average of closely related items when the basic heading to which the product belongs is too heterogeneous – and the application of the computed inflation in the projection of quarterly household consumption prices for non-reference years, using reference year prices obtained from data collection in global or regional ICP rounds. The extrapolation/ retrapolation exercise is performed by Western Asia's regional ICP office which is provided with the detailed CPI data from member countries, and which later computes quarterly inflation and applies it to the collected household consumption data during the global/ regional ICP round to obtain average prices for the non-reference years. As for non-household consumption prices, they are collected by member countries, or extrapolated/ retrapolated using the appropriate price indices – until recently where non-household consumption prices started being collected on an annual basis. The other aspects of PPP computation remain the same as in the global ICP rounds, with national accounts

expenditures estimated using the Model Report on Expenditure Statistics (MORES) and with rounds of intra- and inter-country validation following price collection/ computation to ensure data accuracy.

Recently, Western Asia is applying a new methodology which divides the compilation of household consumption prices into three components for non-reference years:

- Extrapolation/ retrapolation using detailed quarterly CPI;
- Actual collection of Fast Evolving Technology (FET) items whose specifications change constantly with technological advances, thus replacing extrapolation/ retrapolation for those items;
- Provision of actual prices – thus also avoiding extrapolation/ retrapolation – for some items whose prices are available to the National Statistical Offices either through their common availability in both ICP and CPI lists with the same specifications, or from other price indices or administrative records, such as the prices of electricity, fuel, water supply, communication services, etc.

The benefits of this integration activity encompass the national and regional levels, sustaining the regular production of PPPs without undergoing a full annual PPP production round entailing actual data collection for a complete list of 632 items, and sustaining the regular estimation of annual expenditures at the level of the GDP and its aggregates as well. Western Asia hence succeeded in constructing the intended continuous PPP time series while reducing the member countries' time, budget, and human resources constraints tied to data collection.

3. CPI-ICP harmonization in the production of sub-national PPPs

The difference in inflation levels across a single country and the difference in consumption patterns between regions of the same country caused by demographic diversity emphasize the need for the computation of sub-national price indices. Moreover, the differences in the cost of living and income per capita between the different regions in one country highlight the need for tracking purchasing powers for the same national currency across the country. This section will focus on the national projects implemented under the guidance of Western Asia's ICP team for the computation of sub-national PPPs.

Capitalizing on the experience gained from the ICP, Western Asia undertook an innovative initiative for the production of PPPs at the national level. The choice fell on the United Arab Emirates (UAE) as pilot country given its unique federal structure of seven Emirates, the variation of consumption patterns across the country, and the difference in the prices of goods and services between the Emirates. Sub-national PPPs for 2015 for the UAE were successfully computed, illustrating the difference in purchasing powers of the United Arab Emirates Dirham (AED) across the different Emirates. National projects are currently being implemented in each of Egypt and

Sudan for the production of sub-national PPPs, and other countries have expressed interest in undertaking such an initiative given its wide range of benefits at the national level.

Western Asia developed a methodology for the computation of sub-national PPPs which integrates both CPI and ICP. In this exercise, the regional ICP product list is not used – conversely, the national CPI list of each country is used for compilation of household consumption prices, or the different sub-national CPI lists are merged and integrated, deriving a common national list for use throughout this activity. This practice thus ensures the collection of a representative basket of goods and services in each country and comparability across the country by enabling the different sub-national statistical offices to collect price data for the same basket of goods and services. As for non-household consumption, the five special surveys of the ICP - namely housing rentals, private education, government compensation, machinery and equipment, and construction - are also used in this exercise for the computation of sub-national PPPs. However, since this project is a national project, it relies either on the national surveys or on global surveys after update to take into consideration national characteristics. Other aspects of the ICP are also retained in this activity, such as the estimation of GDP expenditures using MORES and the validation tools employed for performing data checks to ensure price data accuracy. In the case of the UAE, a new national household consumption product list was developed, integrating the different sub-national CPI lists, and structured product descriptions were developed for each item to guarantee consistency and comparability in the different sub-national regions. The global non-household consumption surveys were further developed, taking into consideration national differences and ensuring national representativeness. Hence, for the computation of sub-national PPPs, the UAE fully implemented household and non-household consumption surveys by conducting actual data collection.

This project involves mutual integration between the CPI and ICP, highlighting the dual nature of the integration process, whereby both are effectively and simultaneously improving one another through the incorporation of the ICP classification and methodologies within the CPI work, and the use of the CPI ongoing processes for the production of PPPs at the sub-national level.

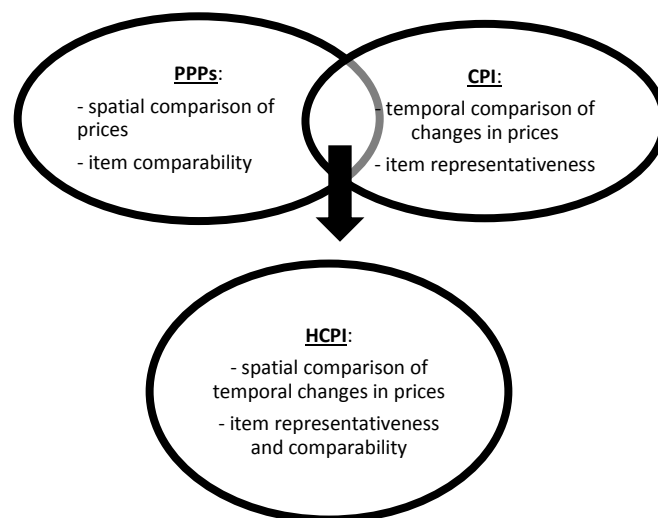
4. Use of the ICP for regional/ sub-regional CPI harmonization

Another important synergetic aspect of the integration between the CPI and ICP is the computation of harmonized national consumer price indices (HCPIs), which facilitates the comparison of inflation levels between different countries and enables the computation of a sub-regional or regional index, hence accurately measuring inflation on a sub-regional or regional level. While the CPI is a temporal indicator and PPPs are spatial indicators, the HCPI constitutes a combination of these two functions, as it provides a spatial comparison of the temporal changes in prices across countries.

Western Asia is undertaking a new project involving the production of harmonized consumer price indices in a group of its member countries, which will allow the computation of a harmonized

consumer price index for the sub-region as well. For this activity, the countries composing the pilot group were selected based on the similarities in their consumption patterns, thus facilitating the construction of a harmonized basket of goods and services and smoothing the progress of the activity.

The harmonization of CPI and ICP activities is achieved in this exercise through the use of some ICP aspects and characteristics in the computation of harmonized CPIs. For instance, in the development of the HCPI lists, national CPI lists classified in accordance with ICP basic headings were compared and some incomparable items were eliminated in order to obtain comparable harmonized item lists for use in this project. Therefore, the HCPI item list is both nationally representative and comparable across the participating countries. Moreover, the weights used for the computation of the index – whether the basic heading and category weights used for the computation of the national indices or the country weights used for the computation of regional/sub-regional indices – are shares out of GDP expenditures estimated using MORES from the ICP. At the end of the project, a time series of HCPIs will be constructed with no additional data collection burden for member countries since the same items are priced in the national CPI as well.

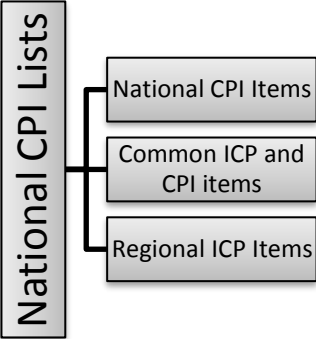


As will be comprehensively described in the next section, some Western Asia member countries started regularly collecting prices for a subset of regional ICP items in parallel with data collection for the national CPI lists. The strategy followed by Western Asia in the HCPI activity involves increasing the overlap between member countries' national harmonized product lists throughout the project's progress, moving the harmonization to a new level by gradually introducing new products from the regional ICP list along with their specifications into the national HCPI lists. This practice will lead to establishing a subset of common regional products within each country's national product list, increasing the harmonization in the area of price statistics and synchronizing

the CPI and ICP data collection activities. It should be noted, however, that in order to maintain national representativeness, only the newly introduced items which are also representative of the country will enter into the calculation of the HCPIs; to ensure this, items will be added into the HCPI list after examination of the importance matrix filled by each country for the ICP. In this matrix, countries specify which products are “important” or heavily consumed, i.e. representative, in their country. Those regional ICP items which are “important” in the group of countries conducting the HCPI will be included in the HCPI lists, thus advancing a step further in CPI-ICP integration.

B. Synergies with Price Surveys for ICP and CPI at the National Level

Given the multiple benefits ensuing from the above-mentioned activities which fall within the framework of CPI-ICP integration, Western Asia countries are also undertaking this integration initiative at the national level, investing the knowledge and experience gained from the ICP in the improvement of national CPI work. For instance, while updating their CPI list for the adoption of a new reference year, some member countries, such as Iraq, Palestine, Qatar and Sudan, have introduced a subset of new items from the regional ICP product list to be priced alongside the CPI, hence reducing data collection efforts and costs in the next ICP rounds. While the collection of prices for the ICP items introduced in the CPI list will take place on a quarterly basis, it will not however enter in the calculation of the CPI, thus maintaining the CPI’s national representativeness. Nevertheless, since prices of some ICP items will be regularly collected after their inclusion in the CPI list, regular PPP production will be more accurate as it will rely less and less on extrapolated/ retrapolated data and more on actual data. Other countries which have not yet introduced subsets of regional items within their CPI lists will still be able to compute annual PPPs through extrapolation/retrapolation. Others, such as Saudi Arabia, have stated their ability to conduct full surveys to collect household consumption prices for the ICP on a regular basis separately from CPI data collection, and will thus be providing actual data for the computation of annual PPPs.



Moreover, another initiative undertaken by some Western Asia countries in the same context of CPI-ICP integration is the development of new national price indices, an initiative in which Western Asia’s ICP office offered to guide Western Asian countries interested in undertaking this project. The ICP non-household consumption special surveys – for which prices are compiled

annually in Western Asia region – act as a foundation for countries to build on in developing their own special indices, such as a construction index or a machinery and equipment index, which constitute an addition to the national statistical output. For instance, Oman has incorporated all ICP private education and rentals survey items along with their specifications within their national CPI list, Palestine has a construction and roads cost index whose items are overlapping with the ICP construction survey, and Qatar has developed a machinery and equipment index based on the ICP survey with basic heading weights obtained from MORES and is also working on developing a construction index. This integration aspect may not apply to the CPI, however it does provide member countries with an opportunity to integrate ICP activities with national price statistics activities and to enrich their national price statistics output.

The integration of CPI and ICP activities at the national level does not only lead to the improvement of national statistical practices, it also guarantees the sustainability of PPP production on an annual basis. This is especially important in Western Asia since its strategy for the upcoming years consists in the annual production of PPPs over 3-year cycles through a combination of collection and extrapolation/ retrapolation of household consumption prices using the detailed national CPI, and actual collection of non-household consumption prices which can also become more efficient and less costly with the development of the new price indices.

The harmonization between CPI and ICP through the incorporation of ICP items within the national CPI lists of Western Asia member countries will lead to the synchronization of data collection activities between CPI and ICP, thus reducing cost, time, and additional efforts placed into the collection of price data for the ICP, which is especially beneficial with the ICP becoming a permanent program and with the regular production of PPPs.

C. Statistical Capacity Building – Data Collection and Validation

As part of the ongoing ICP activities, whether in the context of a global ICP round or a regional PPP production round, Western Asia constantly conducts workshops with member countries aiming at building and improving capacities in data collection and validation. From the beginning of each round, Western Asia's regional ICP team meets with ICP national coordinators from the different member states for the development of the regional ICP product list, formulation of the structured product descriptions, and completion of the matrix of importance required for highlighting nationally representative items within the regional list. Moreover, the regional ICP team also presents the framework of the different surveys guiding member countries in outlet and market selection as well as in data collection methodology. In the next stage, multiple validation rounds are performed for the validation of collected and extrapolated/ retrapolated data. These validation workshops consist in intra-country as well as inter-country validation of household consumption and non-household consumption price data. During these workshops, data is

reviewed for spotting outliers, and accuracy checks are run in order to ensure high quality and validity of collected data.

These validation efforts, along with the data collection activities performed by the participating countries within the ICP frame, act as statistical capacity building activities as they provide a building block for countries in order to improve their own national data collection activities for the CPI or other price surveys and validation techniques to enhance their national statistical output.

For instance, many countries, as shown in the previous section, have benefited in terms of facilitating CPI data collection by merging the CPI and ICP lists into a single database which is composed of common items in addition to items specific to the ICP or CPI. This initiative allowed the ICP work to be conducted by the national CPI team using the same equipment for data collection of both indicators and enabled skipping the repetition of the data entry process, thus saving time, money and efforts. Moreover, additional efforts were exerted to facilitate data collection of the CPI, such as the adoption of structured product descriptions in the national CPI and the construction of an illustrated catalogue to guide in item identification in Palestine for instance, a practice employed in Western Asia for household consumption items. Furthermore, some data validation rules from the ICP were also implemented in Palestine's national CPI, specifying upper and lower limits on average prices as well as acceptable rates of change in a product's price. These examples illustrate some of the benefits gained by countries in Western Asia from participation in the ICP and integration of CPI and ICP activities in terms of building and developing national statistical capacities.

D. Challenges and Opportunities

The integration between the CPI and ICP activities can prove to be challenging. The products figuring on the ICP global core list may not always be included in the national lists; for instance, some products may not be representative of a certain country or not available in all regions of a country equally, presenting disparities between urban and rural areas, or not consumed by households from different income levels in the same country. This challenge may present an obstacle to achieving further harmonization and overlap between the ICP and CPI product lists, making data collection for the ICP costly and time consuming. Moreover, achieving overlap between the CPI and ICP product lists takes time as it cannot be fully accomplished in a single step. This process should start by introducing subsets of ICP items when updating the CPI list. However, this process has become easier in Western Asia region since efforts were already made and continue to be directed towards achieving overlap between the ICP regional product list and member countries' CPI lists. Furthermore, other non-household consumption surveys are incorporated within the national CPI lists, such as rentals and private education and can also be integrated with the ICP items when the CPI list is being updated. Therefore, although presenting some challenges, the double-folded process of integration between the CPI and ICP provides

multiple benefits, overthrowing the possible challenges, especially with the opportunities available for the implementation of integration activities, whether on the regional level with the different projects and initiatives undertaken for this purpose, or on the national level with the achievement of overlap and synergies between CPI and ICP surveys when updating the CPI lists.

E. Suggestions for Other Countries

Western Asia's experience in the integration between CPI and ICP activities resulted in numerous benefits both on the regional and national levels, demonstrating the importance of working towards achieving a high level of integration and synergy between the ICP and the national CPI or other price indices. Therefore, based on the successful experience in Western Asia, other countries and regions would also benefit from undertaking such projects for advancing the CPI-ICP integration. This section contains some lessons learned from these activities in Western Asia which could act as a roadmap assisting other regions or countries undertaking the same projects.

As mentioned in the previous section, the achievement of a high level of integration between CPI and ICP activities takes time. A good starting point would be the update of national CPI baskets. Whenever updating the CPI list – a process which usually takes place every few years – countries could start by incorporating items from global and regional ICP lists, thus saving future efforts and costs in data collection. Moreover, since the ICP offers structured product descriptions for each item in order to ensure comparability of prices across the different countries, each country could start incorporating these descriptions in their CPI lists if they do not contradict with their own item specifications, as the CPI should maintain national representativeness. At the regional level, there are also opportunities for integrating CPI and ICP activities through some projects which would sustain the production of regular PPPs in line with the UNSC recommendations.

Conclusion

Both PPPs and CPIs contribute to economic well-being through their various uses. They are different indicators with different purposes, the CPI providing temporal comparisons and PPPs providing spatial comparisons. Nonetheless, the integration between these two indicators can produce synergetic effects on the global, regional, national, and sub-national levels. The integration between the CPI and ICP activities was highly recommended by the United Nations Statistical Commission (UNSC) at its 47th session which underlined the importance of PPPs and their production on a permanent basis.

Although presenting some challenges, the integration between CPI and ICP activities produces numerous benefits on the different levels, ranging from the regular production of PPPs, to the development of national capacities in price statistics, to the improvement of price statistics

infrastructure and output at the national and regional levels. Western Asia is working towards achieving these goals through the integration between CPI and ICP activities realized in the different innovative initiatives developed in the region, and which can provide an example that other countries can learn from and apply.