



**Linking Caribbean countries and treatment of  
partial participation in the 2017 Round**

**Bruno Lana and Giovanni Savio, UN-ECLAC**

**4<sup>th</sup> Meeting of the International Comparison Program (ICP)  
Technical Advisory Group (TAG)**

October 28–29, 2019  
World Bank, 1818 H St. NW, Washington, DC

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**Summary** This short note reviews and compares the estimation processes carried out for the 2011 revision and the 2017 Rounds of the ICP for Latin American and Caribbean countries (LAC). The note focuses on participating countries, coverage, procedures followed to fill in the gaps in data submission, and compares the outcomes under alternative scenarios in linking the Caribbean (CAR) to Latin American (LA) countries participating in the Rounds.

## **1. Introduction**

This note shortly reviews the main steps followed in the estimation process of PPPs for the 2011 benchmark year, it describes the changes recently carried out for its updates, and details on the steps undertaken for 2017 benchmark estimations, highlighting the (few) differences with the estimation process followed for the 2011 Round. The scheme of the note is as follows. Section 2 focuses on the 2011 estimation and its updates, mainly due to revisions of the 2011 national accounts figures available from participating countries, and minor changes due to the use of new productivity-adjustment factors. Section 3 details on the steps undertaken in the 2017 benchmark estimation, focusing on differences with the 2011 Round, and the procedures followed for gap-filling as well as the approach used for linking CAR and LA countries. Section 4 provides a comparison of results obtained with different linking processes, each one corresponding to a different treatment of CAR countries. Section 5 concludes.

## **2. Revisions of the 2011 PPPs**

The methodology used for estimation of PPPs for the 2011 Round has been widely described in Cepal (2016)<sup>1</sup>. Here it suffices to summarize that the Round was conducted separately for the 38 CAR and LA countries<sup>2</sup>, which collected price data based on slightly different product lists. Results were corrected to take into account factor-productivity adjustments. Separate estimates of the two sub-regions were carried out, with base Peru and Jamaica respectively for LA and CAR, and finally the two sets of countries were aggregated through redistribution taking fixed the base of Peru.

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<sup>1</sup> See Cepal (2016), *Programa de Comparación Internacional Ronda 2011 - Documento Metodológico*, Series Documentos de Proyecto, LC/W.699.

<sup>2</sup> Cuba, the 39<sup>th</sup> participating country for LAC, had a different treatment in final estimations.

First of all, and most importantly, since the publication of the regional and global data of the Programme, revised estimates of national accounts for 2011 have been produced by the majority of the participating countries, leading to major changes (mainly due to the 2008 SNA implementation) in total GDP figures and the main demand components.

GDP current data for 2011 were revised by 30 countries that participated in the 2011 Round. Most variations were small, due to regular revisions, while the most relevant were caused by changes in the reference year and the implementation of SNA 2008 recommendations. Main changes in GDP were observed for Paraguay (+34.3%), Bahamas (+27.9%), El Salvador (-21.8%), St Lucia (+19.3%), and Trinidad and Tobago (+16.6%).

Population data also underwent revisions in 15 countries, with variations usually below 2.0%. The most relevant cases were Honduras (+6.2%) and Paraguay (-4.1%).

Another minor source for revision was due to the use of different productivity adjustment factors, which reflected revisions of national accounts data and revised estimates of input factors at the country level<sup>3</sup>.

### 3. Comparison between the 2011 and 2017 Rounds

During the 2011 Round, activities in the LAC region were carried out separately in the two sub-regions, with work initiated at the end of 2010 for LA countries, and almost one year later in the CAR, due to the necessary preparation and need of training most CAR countries' prior formal start of the programme in this sub-region. The programme continued with clear separation of the two sub-regions, which followed price data collection based on two different lists of household products, as well as with slightly different Special Survey questionnaires. The list for LA countries included 637 products, while the list for CAR contained 570 products.

For the ICP 2017, the decision was taken to adopt a common list of items, composed of 774 Global and Regional items. The LA Household Consumption list contained a set of 418 items from the Global List as well as 51 additional Regional items, while all Special Surveys questionnaires were equal to the Global ones, except for the inclusion of one regional item in the Construction Survey, see Table 1.

**Table 1** – The structure of the Regional list for all participating countries, Round 2017

	Global Items	Regional Items	Total Items
Household Consumption	418	51	469
Rentals	13		13
Education	6		6
Government	34		34
Construction	55	1	56
Machinery and equipment	196		196
<b>TOTAL</b>	<b>722</b>	<b>52</b>	<b>774</b>

<sup>3</sup> See Inklaar, R. (2019), *Productivity adjustment in the ICP – TAG note*, prepared for the 4<sup>th</sup> Meeting of the ICP TAG, October 28–29.

Although the response patterns, especially concerning Special Surveys, has resulted quite similar over the two Rounds, data collection achieved lower response rates in the Cycle 2017 compared to the 2011, with no deliveries concentrated for both benchmark years in few countries.

Focusing on the six special surveys (Construction, Rent, Machinery and equipment, Government, Education, and Housing volume), UN-ECLAC received 187 Special Survey questionnaires from 39 participating countries during the 2011 Cycle (with a non-response rate of 20.1% = 47 / 234). In parallel, by mid-October 2019, 153 Special Surveys were submitted for the 2017 Cycle from the 36 participating countries (average missing forms equal to 29.2% = 63 / 216).

While we notice virtuous countries providing consistently all questionnaires in the two Rounds (i.e. Honduras, Uruguay, Anguilla, Bermuda, Curacao, St. Vincent and the Grenadines, and Suriname), and countries that performed better in terms of data submission in the current Round (i.e. El Salvador, Belize, Dominica, and Turks and Caicos Islands), there are other situations worth mentioning in terms of paucity of data-collection in the current Round, notably Haiti and Bolivia in LA, and most strikingly in the CAR islands, i.e. Bahamas, Barbados, Jamaica, Bonaire, Sint Maarten and British Virgin Islands. Whilst LA countries, from 2011 to 2017, passed from a non-response rate of 19.6% to 21.8%, CAR countries registered an increase from 20.5% to 33.3%.

The reasons for such a reduction in response rate depends on specific situations in each country, and it should be investigated on a case-by-case basis. Overall, common factors explaining this situation might be found in the existence of different statistics priorities (i.e. running of censuses operations in conjunction with the Round, increasing importance and challenges derived from the sustainable development agenda etc.), a chronic paucity of human resources available for overall statistics operations (especially in small CAR islands), a substantial reduction in funds addressed to statistics, cut of staff in National Statistics Offices (again in CAR, especially in bigger islands, i.e. Jamaica), and other exogenous factors, such as the negative impacts of meteorological conditions (devastating effects of the 2017 sequence of hurricanes in CAR islands, i.e. in Sint Maarten and British Virgin Islands).

**Table 2 – Comparison of answers to Special Surveys in the two Rounds**

	ICP 2011						ICP 2017					
	GOV	EDU	REN	M&E	CON	HOUV	GOV	EDU	REN	M&E	CON	HOUV
Argentina												
Bolivia												
Brazil												
Colombia												
Costa Rica												
Cuba												
Dom. Republic												
Ecuador												
Guatemala												
Haiti												
Honduras												
Nicaragua												
Panama												
Peru												
Paraguay												
El Salvador												
Uruguay												
Venezuela												
Anguilla												
Antig. and Barb.												
Aruba												
Bahamas												
Barbados												
Belize												
Bermuda												
Bonaire												
Cayman Islands												
Curacao												
Dominica												
Grenada												
Guyana												
Jamaica												
Montserrat												
St. Kitts & Nevis												
St. Lucia												
St. Vinc. & Gren.												
Sint Maarten												
Suriname												
Trinidad & Tob.												
Turks & Caicos												
Virgin Isl. (Br.)												
Non-resp. rate (%)	15.4	10.3	17.9	20.5	17.9	38.5	38.9	19.4	30.6	27.8	30.6	27.8

█ : Available  
█ : Not available  
█ : Not participating

To complete the gaps in the calculation of Basic Headings PPPs for the 2017 Cycle, and in order to move and center all information to mid-2017, the following steps were undertaken:

1) Prices collected for the 2017 Cycle, observed between 2017 and 2019 in the various countries, were centered to mid-2017 using CPI indexes and national accounts deflators. For Household Consumption items, the link with the national CPI was made at the most detailed level possible, thus preferably at the product level, taking into due consideration all combinations of data availability in its different forms (by country and product) and, in those cases of less data availability, at least at COICOP 12 aggregated level.

2) A match was made between Special Survey items in the ICP 2011 and 2017 lists. For countries that did not collect information for any Special Surveys of the 2017 Cycle, price data submitted for the ICP 2011 were extrapolated using CPI indexes and national accounts deflators. Within a survey, all prices were extrapolated using the same index.

The complete price data-base had the format reported in Table 3.

**Table 3 – Filling in the gaps of the Special Surveys**

	ICP 2017					
	GOV	EDU	REN	M&E	CON	HOUV
Argentina						
Bolivia	2011	2011	2011	2011	2011	
Brazil						
Dom. Republic						
Ecuador						
Haiti		2011			2011	
Honduras						
Nicaragua	2011					
Panama			2011			
Peru						
Paraguay	2011		2011			
El Salvador						
Uruguay						
Anguilla						
Antig. and Barb.	2011					
Aruba						
Bahamas	2011	2011		2011	2011	
Barbados		2011	2011	2011	2011	
Belize						
Bermuda						
Bonaire	2011	2011	2011	2011	2011	
Cayman Islands	2011			2011	2011	
Curacao						
Dominica					2011	
Grenada					2011	
Guyana						
Jamaica	2011	2011	2011	2011	2011	
Montserrat			2011			
St. Kitts & Nevis						
St. Lucia						
St. Vinc. & Gren.						
Sint Maarten	2011			2011	2011	
Suriname						
Trinidad & Tob.						
Turks & Caicos						
Virgin Isl. (Br.)		2011	2011			

3) Basic Headings PPPs were estimated for LAC using this data-set, which contained data submitted for ICP 2017, plus ICP 2011 Special Surveys extrapolated prices. At the end of this stage, 90.4% of the Basic Headings PPPs were calculated (3255 out of 3600).

4) The remaining Basic Headings were gap-filled within Dikhanov’s aggregation tool, which contains a complete mapping of related Basic Headings. Therefore, a missing value for a country is determined by its proportional prices in other Basic Headings for which the information has been provided by the country.

5) As per calculations in the 2011 Round, ICP 2017 PPPs aggregation and calculations followed the steps below:

- i. Production of PPPs for Latin America and the Caribbean together (36 countries), with Brazil as reference country;
- ii. Production of PPPs for Latin America (13 countries, Brazil as reference) and the Caribbean (23 countries, St. Vincent and the Grenadines as reference) separately; and
- iii. Replacement of the PPPs for Latin America and the PPPs for the Caribbean in the Latin America and the Caribbean joint estimates data-set, to maintain the fixity of both LA and CAR PPPs.

#### **4. Linking the Caribbean and comparisons of various scenarios**

The PPPs estimated in the three steps mentioned in the previous Section are presented in Table 4 below. The first estimation, as per the column  $PPP_{36}$ , produced Basic Headings PPPs for the whole set of countries together. The PPP GDP in this conjoint aggregation has Brazil as base country. Column  $PPP_{Sub}$  presents sub-regional PPPs, calculated through the aggregation of the 13 LA countries, having Brazil as base; and of the 23 CAR countries, having Saint Vincent and the Grenadines as base. The last column,  $PPP_{Fix}$ , presents the regional results for the whole region (36 countries) together, having Brazil as the base, preserving sub-regional fixity and keeping Latin America's values unchanged from the sub-regional calculation. An important result obtained is that final aggregated outcomes are quite close under the alternative scenarios.

ECLAC considers that the GDP PPP does not change much between  $PPP_{36}$  and  $PPP_{Fix}$  aggregation, and a possible future step to fully integrate the two regions is the aggregation/calculation of final GDP PPP of LA and CAR countries together, thus performing only the first step ( $PPP_{36}$ ) and use it as the final LAC result.

#### **5. Conclusions**

This note has described the steps undertaken for re-calculation of 2011 ICP results and estimation of 2017 PPPs for LA and CAR countries, focusing in particular on filling existing gaps in data submission for the current Round. The increase in the non-response rate, especially for CAR countries, is due to a number of reasons, most of them common, and possibly linked to structural and exogenous factors that cannot be easily handled and set.

Advocacy is a strong arm at our disposal to increase commitment and dedication. However, without a more focused plan for statistics development, and a more effective support to improve availability and quality of basic data sources, this situation might perpetuate in the forthcoming rolling Rounds and, for LA countries, made more evident by the fact that countries with well-developed statistics system will probably continue joining the OECD.