



Second Meeting of the International Comparison Program (ICP) Computation Task Team (COTT)

November 21, 2019, November 25, 2019 (virtual meeting through WebEx)

Meeting Minutes

Welcome and meeting objectives

The second meeting of the ICP International Comparison Program (ICP) Computation Task Team (COTT) was held on November 21 and November 25, 2019. The main objectives of the meeting were to discuss i) any remaining issues with the computation of ICP 2017 and revised ICP 2011 results; ii) the approach for calculating purchasing power parity (PPP) timeseries; and iii) COTT communication protocols and the timeline of next steps.

The meeting agenda is provided in Annex 1. The meeting participants are listed in Annex 2. The minutes of the 1st COTT meeting are available [here](#). The second COTT meeting presentation is available [here](#).

01. Recap: Approach for linking education and health, and any pending issues

At the first COTT meeting members agreed on the approaches for linking education and health. The approaches are described in the minutes to that meeting and in the related Technical Advisory Group (TAG) meeting note, available [here](#).

At the second COTT meeting, members agreed on the following amendments and clarifications to the previously agreed approaches:

- Education: the government education headings used for linking private education will exclude the “Education benefits and reimbursements” basic heading (BH), given that the said BH itself is referenced from private education. Hence, the government education heading used for linking will be “Production of education services” (a group level heading), instead of “Education” (a category level heading).
- Eurostat-OECD PPPs: Eurostat-OECD agreed to provide BH PPPs as per the ICP 155 BH classification, including the BHs not covered in the previous submission. Hence, no regional BH PPPs are needed to be estimated by the COTT during the final round of calculations.

02. Recap: Approach for estimating linking factors for reference PPP headings, and any pending issues

The approach for estimating linking factors for reference PPP headings was agreed, virtually, after the first COTT meeting. Subsequently, the description of this approach provided in the TAG note, available [here](#), was agreed upon by COTT members¹.

03. Recap: Treatment of dual-participating countries in global linking and aggregations, and any pending issues

Various options for treating dual-participation countries in the global linking and aggregation were discussed, in continuation to earlier discussions on the topic, as outlined in the 1st COTT meeting minutes.

Agreements and conclusions:

- It was agreed that the dual-participation countries, namely, Egypt (2011, 2017), Sudan (2011, 2017) and Morocco (2017), are included only once in the global GEKS aggregation, as Africa-region countries (in other words, the so-called 143-option is to be followed). However, the utilized linked BH PPPs are geometric means of Africa's and Western Asia's BH PPPs for the said countries. This approach is in line with the ICP 2011 approach.

04. Recap: Approach for linking housing, and any pending issues

The COTT was briefed on the progress with revising housing linking factors for 2011, and computing housing linking factors using various averaging options, in particular:

- Calculating 2011 linking factors with the revised 2011 expenditures, population and regional PPPs, using the 2011 methodology. Thus far, the use of revised datasets has not yielded any large differences in relation to the original 2011 linking factors.
- Testing three options for weighing the regions in the calculation of linking factors: (i) simple arithmetic mean; (ii) weighted arithmetic mean; and (iii) unweighted geometric mean.

Agreements and conclusions:

- COTT members in charge of computing housing linking factors will compute revised 2011 linking factors, based on the revised 2011 expenditure, population and regional PPP data.
- Computation and use of same or different set of linking factors for the four housing basic headings will be further researched.
- COTT members in charge of computing housing linking factors will further experiment with different scenarios for weighing regions using the original 2011 data and report back to the COTT on the results. The calculation file will also be shared with the COTT for its review and feedback.
- The same method will be used for calculating both the revised 2011 and 2017 housing linking factors.

¹ Robert Hill agreed to circulate an earlier paper discussing options for linking regional results into a global set of results, for information. The paper is available [here](#), and some comments on linking regions for reference PPPs from the author is available [here](#). In addition, a related paper by Sergey Sergeev is available [here](#).

05. Estimation of productivity adjustment factors

The approach for estimating productivity adjustment factors (PAFs) was discussed, namely, the level of detail utilized in estimating the said factors. In addition, the approach for treating data gaps was discussed.

Following a series of simulations, the following was agreed:

- The PAFs will be estimated based on five asset levels, instead of six assets levels suggested earlier. The five asset levels are achieved through combining “residential” and “non-residential” construction assets, with the result that the observed peculiarities with “residential” and “non-residential” asset shares are avoided. The results for both five and six asset levels are very similar².
- Regarding data gaps, it was agreed to use regional averages as the gap-filler for each missing indicator, as appropriate³.

06. Treatment of NPISH headings & net purchases abroad

The COTT was briefed on the discussions relating to non-profit institutions serving households (NPISHs) and net purchases abroad (NPA) that took place at the 8th Inter-Agency Coordination Group (IACG) meeting.

Agreements and conclusions:

- ICP Regional Coordinators agreed not to re-allocate NPISHs and NPA expenditures and provide respective regional reference PPPs. Countries may still not be able to provide said expenditures separately from related household consumption (HHC) expenditures. Hence, the final COTT input file will have countries with and without expenditures for these headings. However, no specific approach is deemed necessary, assuming that all regions are able to provide required reference PPPs.
- On a related note, given that not all countries are able to provide NPISH and NPA expenditure separately from HHC, the IACG also agreed that HHC heading to be published will include NPISHs expenditures. The same will apply to the “HHC without housing” heading, which will include NPISHs expenditures. The resulting new or revised aggregates will be added to COTT input file; this impacts PPPs, expenditures, and aggregation mapping sheets.

07. Approaches for dealing with data gaps

The Phase II COTT input file included data gaps for selected construction headings and countries in Asia and in Latin America and Caribbean. In other words, no data were provided for an entire input resource group, such as “equipment hire” or “labor”.

² In practice the current assets groups “n_ocon”, Current-cost net capital stock for non-residential structures, in current local currency units, and “n_rstruc”, Current-cost net capital stock for residential structures, in current local currency units will be merged into a new asset group “n_con”, Current-cost net capital stock for residential and non-residential structures, in current local currency. Total construction PPPs (3 BHs), instead of any break-down, will be further utilized in estimation of the PAFs.

³ In case of missing employment data, the region’s average employment/population ratio multiplied by population data for the countries is used. In case of missing labor shares, the region’s average labor share is used.

Agreements and conclusions:

- The COTT agreed to use the unweighted country product dummy (CPD) method as gap-filler, as needed, instead of dropping the selected countries from the calculation of construction linking factors. The CPD regression will be based on PPPs for the nine construction sub-headings; in another words, the regression will be based on total construction.

08. Approach for linking non-core regions / countries

The approach for linking non-core regions and countries was further discussed.

Agreements and conclusions:

- Caribbean (CAR) will be linked through Latin America (LAT), which is a core region. The COTT input file includes both LAT and CAR PPPs, with Brazil as the base. These PPPs maintain fixity of both LAT and CAR PPPs through the CAR-volume approach; hence, LAT PPPs, as provided, can be utilized in the calculation of linking factors, while the global CAR PPPs can be obtained through multiplying the CAR regional PPPs with Brazil's global PPPs
- Iran will be linked through Western Asia (WAS), which is a core region. Hence, regional results for Western Asia should be calculated with Iran (WAS13, without fixity) and without Iran (WAS12, with fixity). The Global Office will further assess the most feasible approach for dealing with missing data on government compensation.

09. Approach for estimating PPP timeseries

The approach for estimating PPP timeseries was discussed based on the related note provided by Robert Inklaar and Prasada Rao. The note is available [here](#).

Agreements and conclusions:

- Global benchmark PPPs will be extrapolated / retropolated at the BH level; weighted geometric means of extrapolated / retropolated BH PPPs are taken based on the distance from the benchmark; and averaged BH PPPs are aggregated using the GEKS method.
- Regional benchmark PPPs are either obtained from the regional comparisons, as available, or obtained as described above.
- In principle, BH PPPs before productivity adjustment will be extrapolated / retropolated. Subsequently, productivity adjustment will be applied, following the standard approach and utilizing annual PAFs. However, because this is not feasible in the case of education for 2011 (refer to the agenda item 10 below), the productivity-adjusted BH PPPs will be used for this heading.
- Reference PPPs for each year will be calculated as per the reference PPP mapping and approach for estimating the reference PPPs, instead of extrapolating / retropolating the said PPPs.
- Regional results in the global linked timeseries will be incorporated using the CAR-PPP approach at the BH level, and CAR-Volume approach above the BH level.

- National accounts deflators will be utilized at the main aggregate level, as available, while the CPIs will be utilized at the BH or COICOP-12 level, as available⁴. A matrix indicating utilized price indices for each year and country will be produced.
- Countries “switching” ICP regions will be treated separately; treatment of countries dropping or entering the comparison will be reviewed case-by-case. This means that “overlap” regions will be used for 2012-2016, instead of actual regions, with sets of countries common for 2011 and 2017; with the switching countries appended to those “overlap” regions
- Fixity of LAC’s results will be imposed through the CAR-volume approach, as is the case for regional benchmark results.
- The publication level will be determined based on the review of final PPP timeseries.

10. Approach for computing revised ICP 2011 results

The approach for computing revised ICP 2011 results was further discussed.

Agreements and conclusions:

- The ICP 2011 linking factors will be used “as is”, without any new estimations, except for housing, NPISHs and government compensation headings.
- For housing, the housing Task Force will provide the COTT with updated linking factors for 2011.
- For the five NPISH basic headings, linking factors will be estimated based on the ICP 2017 reference PPP mapping and the agreed approach for estimating reference heading linking factors.
- For two government compensation basic headings, namely, health and collective services, the 2011 linking factors without productivity adjustment⁵ will be utilized, in order to apply revised 2011 PAFs, following the ICP 2011/2017 approach for applying productivity adjustments.
- For education, the ICP 2011 linking factors will be applied as such for the related eight basic headings (one under household consumption, one under NPISHs, and six under government).

11. Forthcoming updates to COTT input file

The COTT was briefed on the forthcoming updates on the COTT input file. These include:

- New aggregates: New and revised aggregates, including “Household consumption + NPISH” and “Total housing”, will be added; this impacts PPPs, expenditures, and aggregation mapping sheets⁶.
- Reference PPP mapping: the reference PPP mapping will be updated based on the most recent discussions at the 8th IACG meeting.
- Machinery and equipment goods items for linking: The machinery and equipment goods item list covers both “brand-specific” and “brand-unspecific items”. Due to the concerns on comparability

⁴ The Global Office will provide the COTT with most detailed price indices available, either as provided by the Regional Coordinators, or as available from other international and national data sources. As for expenditures, the Global Office will provide the COTT with the most detailed series available, either as provided by the Regional Coordinators, or as available from other international and national data sources; however, no other gap-filling procedures will be followed.

⁵ This implies that the COTT input file for 2011 linking factors will be amended to include the 2 compensation headings without productivity adjustments.

⁶ The COTT members involved in the calculation of the results are expected to provide results for all headings covered in the aggregation mapping sheet.

of the “brand-unspecific items” between the regions, the 8th IACG agreed that only the “brand-specific” item should be used for calculating linking factors. In practice, it was agreed to relabel the “brand-unspecific items” from “g_Global Item” to “h_Regional Item” in the item list and the item price related sheets.

- Productivity adjustment dataset: Underlying input data required for estimating PAFs, as compiled by the Penn World Tables, will be added to the COTT input file.

12. COTT Communication Protocols

The COTT was presented with suggested communication protocols, and a related communication template, to ensure effective communication and an efficient production process. The said protocols are provided in Annex 3. In essence, the COTT should provide completed feedback on the COTT input file, calculation notes and results to the ICP Global Office focal point(s), without copying any other COTT members. The Global Office will then review all inputs and provide the COTT with consolidated feedback, suggestions, and any other necessary inputs.

Agreements and conclusions:

- The COTT welcomed the suggested communication protocols and agreed to utilize them during the upcoming Phase II (post-TAG) and Phase III calculation rounds.

13. Timeline and next steps

The timelines for calculating revised ICP 2011 and ICP 2017 results, as well as PPP timeseries, based on Phase II (post-TAG) and Phase III COTT input file were discussed. These timelines are provided in Annex 5.

Agreements and conclusions:

- The COTT deemed the suggested timelines feasible. The Global Office will circulate revised Phase II (post-TAG) COTT input file to the COTT, as per the timeline.

14. Any other business

Thijs Benschop, World Bank Development Data Group (DECDG) consultant, was introduced to the COTT. Thijs will be supporting the Global Office with coding language transformations.

Annex 1: Meeting Agenda

[\(Document\)](#)

Day 1, Thursday, November 21, 2019

- 01. Recap: Approach for linking education and health, and any pending issues
- 02. Recap: Approach for estimating linking factors for reference PPP headings, and any pending issues
- 03. Recap: Treatment of dual-participating countries in global linking and aggregations, and any pending issues
- 04. Recap: Approach for linking housing, and any pending issues
- 05. Estimation of productivity adjustment factors
- 06. Treatment of NPISH headings & net purchases abroad
- 07. Approaches for dealing with data gaps
- 08. Approach for linking non-core regions / countries
- 11. Forthcoming updates to COTT input file (moved)

Day 2, Monday, November 25, 2019

- 09. Approach for estimating PPP timeseries
- 10. Approach for computing revised ICP 2011 results
- 15. Recap: Housing Linking factors (added)
- 16. Recap: PAF estimation options (added)
- 12. COTT Process Protocols
- 13. Timeline and next steps
- 14. Any other business

Annex 2: Meeting Participants⁷

Participant	Organization
Aten, Bettina	Bureau of Economic Analysis
Benschop, Thijs	World Bank
Costa, Rui	ICP Global Office
Dikhanov, Yuri	ICP Global Office
Figuerola, Eric	Bureau of Economic Analysis
Hamadeh, Nada	ICP Global Office
Heston, Alan	University of Pennsylvania
Hill, Robert	University of Graz
Inkelaar, Robert	University of Groningen
Kebe, Nancy	ICP Global Office
Koehler, Francette	Organisation for Economic Co-operation and development (OECD)
Konijn, Paulus	Statistical Office of the European Union (Eurostat)
Nsabimana, Maurice	ICP Global Office
Rao, Prasada	University of Queensland
Rissanen, Marko	ICP Global Office
Song, Inyoung	ICP Global Office
Steurer, Miriam	University of Graz
Vigil Oliver, William	ICP Global Office
Yamanaka, Mizuki	ICP Global Office
Zhao, Zhe	ICP Global Office

⁷ Sergey Sergeev provided written contributions prior and after the meeting.

Annex 3: COTT Communication Protocols

[\(Document\)](#)

#	COTT COMMUNICATION PROTOCOLS	WHO	NOTE
	Objective: To ensure effective communication and efficient production process		
A.	Basic check of COTT input file		
A1.	GO focal point(s) send the COTT input file to the COTT members, together with a summary of any noteworthy clarifications and a template for notes	GO focal point(s)	Email + OneDrive
A2.	COTT members review the COTT input file and provide their comments to GO, without copying other COTT members	COTT	Deadlines are "by" dates. Please share with GO complete datasets and notes as soon as they are ready.
A3.	IF NEEDED: repeat A1 and A2	GO+COTT	
B.	Production of linking factors (LFs)		If any technical methodology related questions arise re: calculation of LFs, the COTT members address these to the GO, without copying other COTT members, and GO issues a clarification to all COTT members, as needed.
B1.	COTT members calculate LFs for all headings, and fill the template with notes on issues faced, assumptions made, or solutions implemented, and provide these to the GO, without copying other COTT members	COTT	Deadlines are "by" dates. Please share with GO complete datasets and notes as soon as they are ready.
B2.	GO focal point(s) review the LFs and notes and informs all COTT members of any issue observed	GO focal point(s)	
B3.	IF NEEDED: repeat B1 and B2	COTT+GO	

#	COTT COMMUNICATION PROTOCOLS	WHO	NOTE
C.	Production of results		If any technical methodology related questions arise re: production of results, the COTT members address these to the GO, without copying other COTT members. and GO issues a clarification to all COTT members, as needed.
C1.	COTT members calculate results for all headings, and fill the template with notes on issues faced, assumptions made, or solutions implemented, and provide these to the GO, without copying other COTT members	COTT	Deadlines are "by" dates. Please share with GO complete datasets and notes as soon as they are ready.
C2.	GO focal point(s) reviews the results and notes and informs all COTT members of any issue observed	GO focal point(s)	
C3.	IF NEEDED: repeat C1 and C2	COTT+GO	

Annex 4: COTT Production Timelines

Computation of ICP 2017 Cycle Results		2019	
Preliminary Results (2nd round, post-TAG)	Responsibility	Nov	Dec
2nd Meeting of the COTT	COTT; GO	21, 25	
Circulation of Phase II data to COTT (updated & augmented)	GO	26	
Review of Phase II COTT File	COTT	29	
Review of COTT reports on the COTT file	GO		2
Calculation of preliminary productivity adjustment factor timeseries	COTT		6
Calculation of preliminary 2017 housing linking factors [and 2011, if needed]	COTT		6
Calculation of preliminary 2017 linking factors [and 2011, if needed]	COTT		6
Review of preliminary 2017 linking factors [and 2011, if needed]	GO		9
Review of preliminary productivity adjustment factor timeseries	GO		9
Calculation of preliminary global 2017 PPPs and real expenditures	COTT		13
Calculation of preliminary revised global 2011 PPPs and real expenditures	COTT		13
Review of preliminary 2017 and 2011 PPPs and real expenditures	GO		16
Calculation of preliminary interpolated PPP timeseries	RI		18
Review of preliminary interpolated PPP timeseries	GO		19

NOTE: Deadlines are "by" dates; if a complete set of inputs is ready before the deadline, they can be shared with the Global Office / COTT.

NOVEMBER - DECEMBER 2019						
M	T	W	T	F	S	S
	26			29		1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					
GO	COTT	TAG				

Computation of ICP 2017 Cycle Results		2019		2020			
Final Results	Responsibility	Nov	Dec	Jan	Feb	Mar	Apr
Final regional data submissions	RIAs						
Data validation	GO; RIAs						
Circulation of Phase III data to COTT	GO			10			
Review of Phase III COTT File	COTT			14			
Review of COTT reports on the COTT file	GO			15			
Calculation of final productivity adjustment factor timeseries	COTT; GO			21			
Calculation of final 2017 housing linking factors [and 2011, if needed]	COTT; GO			21			
Calculation of final 2017 linking factors [and 2011, if needed]	COTT			21			
Review of final 2017 linking factors [and 2011, if needed]	GO			22			
Review of final productivity adjustment factor timeseries	GO			22			
Calculation of final global 2017 PPPs and real expenditures	COTT; GO			28			
Calculation of final revised global 2011 PPPs and real expenditures	COTT; GO			28			
Review of final 2017 and 2011 PPPs and real expenditures	GO			29			
Calculation of final interpolated PPP timeseries	RI			31			
Review of final interpolated PPP timeseries	GO				3		
Estimation of final global 2017 PPPs for non-benchmark economies	GO				5		
5 th Meeting of the TAG	TAG				20-21		

NOTE: Deadlines are "by" dates; if a complete set of inputs is ready before the deadline, they can be shared with the Global Office / COTT.

JANUARY 2020						
M	T	W	T	F	S	S
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6	7	8	9	10	11	12
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27	28	29	30	31		

FEBRUARY 2020						
					1	2
3	4	5	6	7	8	9
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17	18	19	20	21	22	23
24	25	26	27	28		
GO	COTT	TAG				