INTERNATIONAL COMPARISON PROGRAM

SECOND MEETING OF THE TECHNICAL ADVISORY GROUP

HOUSING TASK FORCE

PROGRESS REPORT

May 2018

Contents

Background

What are the goals of ICP comparisons of housing services? The first goal is a measure of the quantity of quality adjusted housing services across countries, small and large, rich and poor, and urban and rural. The housing stock and the services these structures provide are quite heterogeneous within and between ICP countries. To obtain good quantity comparisons it is necessary to reduce this heterogeneous flow of housing services to a common dimension, which has been the goal of ICP since its inception. The approach used in the 1970 to make these quantity comparisons was to estimate PPPs for housing services on the basis of direct rental information from household surveys. For some countries hedonic rent equations were estimated which provided rents for cells in a stratification based upon size of structure, type like apartment, attached home and detached home, age, amenities like bath, electricity and water. Other countries provided direct average rents for cells in the stratification, the current practice in most EU-OECD countries. The cell entries were then aggregated using a weighted CPD regression, where the weights were the quantities of rented and owner-occupied dwellings for each cell. The end result was a set of rent PPPs that when divided into national currency totals for actual rent expenditures produce indirect estimates of quality adjusted quantity of housing services.

The above is termed the rental equivalence approach and is the preferred method for the EU-OECD for both the purpose of obtaining total rent expenditures including owner occupied housing (OOH) and a direct PPP for housing. These estimates are part of the rental portion of the income and product side of national accounts as well as for ICP rental PPPs. Many countries have limited rental markets where less than ten percent of the housing stock is rented, and this often at low non-market rents by the government or at unusually high rents to foreigners. In such countries observed rents would not be appropriate for application of rental equivalence for either national accounts or rental PPPs. The TAG has recommended the user cost approach to estimate total rent expenditures in countries with thin rental markets. User cost estimates are based upon summing up current repairs and maintenance[1], capital consumption, insurance, taxes and the net operating surplus usually expressed as rates and applied to the current value of the dwelling stock.

User cost forms the basis for total rent expenditures. Indirect rent PPPs can be then obtained by dividing the total of rent expenditures by the quality adjusted stock of housing in a country. Denote the direct price level obtained from rental equivalence (RE) as DPL_{REi} and the indirect price level obtained by the user cost (UC) and IPL_{UCi}, where i is the index of countries. In the 2011 ICP, quantity data were available for 42 of the 47 EU-OECD countries that would permit estimation of indirect PPPs; so there were a very substantial overlap of countries that could estimate both direct and indirect price levels permitting a granular linking between the two approaches.[2]

---

[1] Within the ICP expenditure classification current repairs and maintenance would be reallocated to the appropriate headings and would not be included in the total of market and imputed rental expenditures. When user costs are used to estimate both rents from the production and expenditure side then it is appropriate to take account of repairs and maintenance.

[2] Two more points may be made be made about user cost. First a number of countries have applied some form of user cost in the context of their CPI where the aim has been to obtain a better measure of time to time rents of owner occupied housing. See Diewert (2008,2009) and Verbrugge (2008).[2] Second, user cost generates both an aggregate of income and rental expenditures from which IPL_{UCi} is derived. When there are sufficient data a disaggregated user cost estimate and rental equivalence may be estimated at the household level. Aten (2017) estimated rental expenditures directly by both rental equivalence and user cost, both yielding different average rents of quality adjusted housing. This required use of the

The ICP global comparisons for 2005 and 2011 were not able to employ rental equivalence or user cost across countries in all the regions for want of data or internal inconsistencies between direct and indirect estimates of the rental PPP. That is the differences between DPL_{Rei} and IPL_{UCi} were often so large that regions found them unacceptable.[3] If DPL_{Rei} / IPL_{UCi} is very different from unity, say over 20%, we only learn that our expenditures, survey rents, or quality adjusted quantities are off the mark. In some cases, we can infer the likely problem by comparing DPL_{Rei} and IPL_{UCi}, for similar countries in cases where we have more confidence in their underlying data, e.g., where DPL_{Rei} / IPL_{UCi} is close to 1.0. Where the direct and indirect estimates are similar, then the component price levels and quantity ratios are likely to be typical for other countries. This is an important argument for why countries are asked to provide and verify both direct rents and quantity data whenever possible. (Further discussion of these points is provided in the appended note on quality adjusted physical measures of dwellings.)

When the differences between IPL_{REi} and IPL_{UCi} are large, the ICP is left between a rock and hard place. The first priority is to make good quantity comparisons of housing services. But suppose that the direct measure of quality adjusted housing is accurate but rental expenditures are too high or too low. In this case the price level will be too low or too high and the quantities consistent with the expenditures too high or too low. Similar dilemmas arise if there are errors in the quality adjusted quantities, or in the rental surveys of countries. Even when it is known that the expenditures of a country are likely to be too low based on the share in consumption compared to similar countries, the ICP is not in a position to alter their national accounts submission. Because of missing or unreliable data, it was necessary to link the regions in 2011 by quality adjusted quantities (Konijn, 2017) and even in this exercise not all countries could be used. The quality adjustment is described in Konijn and elsewhere and is discussed further below.

Suggestions for the TAG

1. Direct Quantity Comparisons

A major effort of the Housing Task Force is to come up with improvements in direct quantity comparisons particularly in Asia as described in Joshi and Dikhanov (2017). (A detailed discussion of the ADB proposals for modifying the ICP quality indicators is treated the appended note.) A major issue has been the measure of physical quantity of housing. Countries have been requested to supply number of rooms and space in m^2 but response was not adequate in 2005 or 2011. The default has been to use simply number of dwellings, but should consideration also be given to using number of rooms or m^2 for those countries that have provided the data? In any event, _Improvement in response is a goal._

The quality indicators submitted in 2005 and 2011 related to the presence or absence of piped water inside, electricity and inside toilet and for the EU-OECD central heating. These were combined with equal weights to generate an overall quality indicator ranging from 0-1 that was multiplied by the number of dwellings. See Konijn (2017), and the separate note appended. This exercise should be carried out, _but the weighting should also be reviewed if not for 2017, the future._

American Community Survey, a very large data set the detail of which is unavailable in very few countries outside the EU-OECD.

[3] Note that large differences between the direct and indirect rental price levels imply equally large differences between indirect and direct estimates of the quantity of rental services. Where underlying data are fairly reliable the differences are much less. Sergeev (2004) compared the indirect and direct estimates for 2000 for 17 EU and candidate countries. The average absolute deviation was 6.0%, an acceptable difference, though some individual countries were outliers.

2. Direct Rental Collection and Rental Equivalence

In the 2011 ICP over a hundred countries provided estimates of rents for a global list of specifications and these data will again be requested. Many of these surveys were not used in the regional estimates because not all countries submitted surveys in a region, or because rental equivalence estimates were not judged acceptable or other reasons. For 2017 countries have been asked to submit meta data to provide a notion of the representativeness of the country surveys for estimation of rent PPPs. The task force should consider *whether adjustments should be made to national surveys that have a limited scope, like only one city, or a target population.*

There is one problem with rental equivalence that needs consideration for the future. There is a basic disconnect between owner occupied housing and rented housing in that the latter is usually in less desirable areas, renters generally have lower incomes than owners, and many positive features of owner occupied housing are not captured in surveys. As a consequence, the rents ascribed to owner occupied housing with the ICP characteristics measured for renters are too low. It is proposed that this be *a subject for discussion by the Task Force of low priority*.

3. A List of Suggestions to Increase Robustness of Comparisons

a. Where countries have both rent surveys and direct quality adjusted quantities some additional analysis might be carried out. For example, the relationship between direct and indirect price levels for these countries and country incomes can be examined, the expectation being that the difference will be greater for low income countries. The reason for this is that the quality adjusted quantities in poor countries tend to overstate the quantities and underestimate the indirect price level of housing services because of omitted quality markers that are more available in higher income countries. This is a major motivation for the effort being undertaken in the Asia-Pacific region to improve the quality indicators for the countries in their region.

b. Related to the above can countries provide rough classifications into durable (pucca) and flimsier construction (kutcha) that could be considered in the quality measurement mantra?

c. Robert Inklaar has kindly provided some very rough estimates of the current value of housing stock for most of our countries for 2016 based on the Groningen calculations of country capital stocks. An experiment was carried out comparing user cost estimates of rental expenditures based on these housing stocks with country submissions of rent expenditures. The results were not successful in the sense that examining very low and high ratios of rent expenditures to GDP were of equal value in identifying problem countries.

d. Can Habitat for Humanity provide costs of a standard low-income housing unit with estimates of depreciation and other elements of user cost for some of their prototypes in some of the countries in which they are active? Or can this information be obtained from national housing organizations responsible for construction of new housing for target populations?

References

Aten, Bettina (2017) "The Rental Equivalence and User Cost Approach to valuing Owner Occupied Housing," Working Paper, US Bureau of Economic Analysis.

Diewert, W. E. (2008), "The Treatment of Owner Occupied Housing and Other Durables in a Consumer Price Index," in W. E. Diewert, J. Greenlees and C. Hulten (eds), *Price Index Concepts and Measurement*, NBER Studies in Income and Wealth, University of Chicago Press, 2008.

Diewert, W. E. (2009), "Conclusions and Future Directions", The Paris OECD-IMF Workshop on Real Estate Price Indexes, Paris, November 6-7 2006.

Eurostat (2006), *Eurostat-OECD Methodological Manual on Purchasing Power Parities*, Luxembourg, Publications Office.

Glaeser, Edward L. and Joseph Gyourko (2009), "Arbitrage in Housing Markets," in E. L. Glaeser and John M. Quigley editors, Housing markets and the economy: risk, regulation, and policy: essays in honor of Karl E. Case, Lincoln Institute of Land Policy, Cambridge, MA

Glaeser, Edward L. and Joseph Gyourko (2018), "The Economic Implications of Housing Supply," Journal of Economic Perspectives, Volume 32, Number 1, Winter, Pages 3–30.

Heston, Alan (2004), "Spatial Comparisons of Costs of Housing Services," Presented at the SSHRC International Conference on Index Number Theory and the Measurement of Prices and Productivity, Vancouver

Heston, Alan and Alice Nakamura (2009b) "Questions about the Treatment of Owner-Occupied Housing in Spatial and Temporal Price Indexes and in National Accounts", *Journal of Housing Economics*.

Joshi, Kaushal and Yuri Dikhanov (2017) "Asia's housing approach in ICP 2011, interim and way forward," paper for the Housing Task Force meeting, October 27, 2027, World Bank

Konijn, Paulus (2017) "International Linking of housing in ICP 2011" Housing Task Force meeting, October 27, 2027, World Bank

Sergeev, S. (2004), "International Comparisons of Housing (experience from the European Comparison Program," Technical Advisory Group meeting (Washington, 21-23 January 2004)

Verbrugge, Randal (2008), "The Puzzling Divergence of Rents and User Costs, 1980–2004" *Review of Income and Wealth* 54, Dec 2008

Attachment 1: Minutes of the First Task Force meeting – October 2017

Minutes of the 1st Meeting of the ICP Task Force on Housing
October 27, 2017
World Bank, Washington, DC

Welcome and Meeting Objectives

The first meeting of the International Comparison Program (ICP) Task Force on Housing was held on October 27, 2017 at the World Bank headquarters in Washington, DC.

The main objectives of the meeting were to brief the Task Force on the Terms of Reference, and to initiate the discussions surrounding the ICP Research Agenda item assigned to the Task Force. The meeting agenda and the list of participants are provided in Annex 1 and Annex 2.

Nada Hamadeh, ICP Global Lead, Word Bank, opened the meeting by welcoming the participants and highlighting the topics to be discussed. She noted challenges in estimating Housing PPPs faced during the past rounds of the ICP and emphasized the importance of Task Force's role in the ICP 2017 cycle.

Background and Terms of Reference

The following presentation was made:
  – Terms of Reference for the Task Force, Global ICP Unit, World Bank

Agreements and Conclusions:
  – The Task Force accepted the proposed Terms of Reference and the timeline of activities and expected deliverables.
  – Alan Heston, ICP Technical Advisory Group member, agreed to act as the Task Force coordinator.

Roundtable Discussion

The following presentations were made:
  – Asia's housing approach in ICP 2011, interim and way forward, Kaushal Joshi and Yuri Dikhanov
  – Inter-regional linking of housing in ICP 2011, Alan Heston and Paulus Konijn
  – Challenges with housing expenditures in ICP 2011, Michel Mouyelo-Katoula and Inyoung Song

Agreements and Conclusions:
  – Countries are asked to collect both rental and quantity data within the ICP 2017 cycle. Countries, Regional Implementing Agencies, and the Global ICP Unit will conduct more thorough validation to assess the consistency between rental data, quantity data and housing expenditures. It was emphasized that quantity data should be thoroughly validated at regional level, even in regions where rental data is used to calculate regional PPPs, because quantity data will be used for inter-regional linking.
  – The inter-regional linking approach will continue to rely on quantity data to link the Eurostat-OECD region that does not collect rental data comparable to other regions. The application of the inter-regional linking approach would be driven by data availability and quality.

- The use of rental data collected in 2016 and 2018 in some regions needs to be assessed by the Task Force with inputs from Regional Implementing Agencies.
- Changing the approach for estimating housing PPPs in Asia needs to be explored, and time series implications needs to be assessed if there is any change in the approach.
- The availability of a note on country practices for compiling housing in national accounts and implementation issues faced would strongly support the validation process.
- Exploring other databases, like Housing Finance Information Network (Hofinet), could help with validating and expanding indicators of housing quality.

To initiate the work, the Task Force agreed on a set of tasks below:

Item	Task	Responsible
Paper on target measures	Draft a paper on the target measures for housing within the ICP, including the sources of inconsistencies between rental data, quantity data and housing expenditures, and their impact on the reliability of resulting real volumes and/or PPPs.	Alan Heston, Niall O'Hanlon and the Global ICP Unit [Paulus Konijn to review]
Providing guidelines on housing expenditures	Share with the Task Force Eurostat's existing guidelines on imputing expenditures for owner-occupied housing, including rental equivalence and user-cost methods.	Paulus Konijn
Collecting additional metadata from countries	Prepare a note/questionnaire to ask countries to provide additional information on their rental survey coverage and the process to estimate their national annual averages.	Global ICP Unit
Expanding quality indicators	Explore the use of additional housing quality indicators. This could include using indicators compiled by other organizations such the UN, or consulting countries on other quality indicators/parameters that could help in estimating housing PPPs.	Kaushal Joshi (w/ADB)
Supporting the validation process	Explore the possibility of preparing a note on country practices for compiling housing in national accounts and implementation issues faced.	Niall O'Hanlon (w/IMF)
Exploring alternative data sources	Explore using alternative data sources such as online or agency listings to collect rental data.	Michel Mouyelo-Katoula (w/AfDB)

Way Forward

- The Global ICP Unit will set-up a [Microsoft OneDrive](#) folder for data and information sharing and invite the Task Force members to join the folder.
- The Global ICP Unit will draft confidentiality statement agreements to be signed by the Task Force, similarly to the 2011 ICP practice.
- The Global ICP Unit will stand ready to support all work undertaken by the Task Force.
- The next meeting of the Task Force will be organized in conjunction with the Inter-Agency Coordination Group meeting, most likely in March 2018.

Annex 1: Meeting Agenda

Friday, October 27, 2017

08:30 – 09:00	*Breakfast*
Task Force	**Housing**

09:00 – 09:30	Background and TORs
	  − Overall objectives, *Nada Hamadeh*
	  − Terms of Reference for the Task Force, *Inyoung Song*

09:30 – 10:00	Asia's housing approach in ICP 2011, interim and ICP 2017 − Asia's housing approach in ICP 2011 and way forward, *Kaushal Joshi and Yuri Dikhanov*
10:00 – 11:00	Inter-regional linking of housing in ICP 2011, interim and ICP 2017 − Inter-regional linking of housing in ICP 2011, *Alan Heston and Paulus Konijn*
11:00 – 11:30	Expenditures for housing − Challenges with housing expenditures in ICP 2011, *Michel Mouyelo-Katoula and Inyoung Song*
11:30 – 12:00	Way forward

Annex 2: List of Participants

Task Force Members
- Kaushal Joshi, Asian Development Bank
- Niall O'Hanlon, IMF
- Paulus Konijn, Eurostat
- Bettina Aten, United States Bureau of Economic Analysis
- Alan Heston, University of Pennsylvania
- Yuri Dikhanov, World Bank
- Inyoung Song, World Bank

Global ICP Unit
- Nada Hamadeh, World Bank
- Marko Olavi Rissanen, World Bank
- Mizuki Yamanaka, World Bank
- Maurice Nsabimana, World Bank
- William Vigil Oliver, World Bank
- Hanan Abu Shanab, World Bank

Regional Implementing Agencies
- Gregoire Mboya Deloubassou, African Development Bank
- Rees Mpofu, African Development Bank
- Anouar Chaouch, African Development Bank
- Marjanca Gasic, Eurostat
- Andrey Kosarev, Interstate Statistical Committee of the Commonwealth of Independent States
- Valerica Accibas, Interstate Statistical Committee of the Commonwealth of Independent States
- Vasily Kuznetsov, Russian Federal State Statistics Service
- Francette Koechlin, OECD
- Majed Skaini, UN Economic and Social Commission for Western Asia
- Federico Dorin, UN Economic Commission for Latin America and the Caribbean
- Maria Paz Collinao, UN Economic Commission for Latin America and the Caribbean

Experts
- Dilip Kumar Sinha, India Ministry of Statistics and Program Implementation
- Patrick Kelly, National Statistical Office of South Africa
- Sergey Sergeev, Statistics Austria
- Luigi Biggeri, University of Florence
- Prasada Rao, University of Queensland

Attachment 2: Minutes of the Second Task Force meeting – March 2018

<div align="center">

Minutes of the 2ⁿᵈ Meeting of the ICP Task Force on Housing
March 12, 2018
World Bank, Washington, DC

</div>

Welcome and Meeting Objectives

The second meeting of the International Comparison Program (ICP) Task Force on Housing was held on March 12, 2018 at the World Bank headquarters in Washington, DC.

The main objectives of the meeting were to discuss progress against the tasks agreed-upon at the first meeting of the Task Force and the expected deliverables. The meeting agenda and the list of participants are provided in Annex 1 and Annex 2.

Discussion Topics

The following presentations were made:
- Task Force task list and meeting objectives, Alan Heston and Inyoung Song
- Draft report to TAG presentation with background paper and EU guidelines, Alan Heston
- Housing metadata questionnaire presentation with draft questionnaire, Michel Mouyelo-Katoula and Inyoung Song
- Regional approaches: Africa presentation, Michel Mouyelo- Katoula
- Regional approaches: Asia and the Pacific presentation, Kaushal Joshi
- Residential capital stock estimates presentation with paper and a note on US Owner-Occupied Housing, Alan Heston

Agreements and Conclusions

The Task Force:
- agreed that a progress report on the activities of the Task Force will be prepared and presented to the Technical Advisory Group (TAG) in May 2018;
- welcomed and accepted the draft report to TAG;
- stressed the need for simplifying the proposed housing metadata questionnaire to lessen the burden on countries;
- discussed researching the definitions for modern and traditional dwellings to minimize any confusion between countries;
- commended the two regional presentations on researching new ways to measure housing quality indicator and owner-occupied rental data;
- recommended further investigating the proposed approaches; and
- welcomed the paper on residential capital stock estimates and on US Owner-Occupied Housing.

Way Forward

To continue its work, the Task Force agreed on a set of tasks below:

Item	Task	Responsible	By
Drafting report to TAG	Draft a report on the target measures for estimating housing PPP within the ICP, to be presented to the TAG in May 2018.	Alan Heston and the Global ICP Unit [Paul Konijn to review]	April 2018
Collecting additional metadata	Simplify and finalize housing metadata questionnaire. Provide the finalized questionnaire to the Regional Implementing Agencies to share with countries.	Global ICP Unit	April 2018
Exploring alternative data sources	Explore the possibility of further researching the proposed approaches in Africa.	Michel Mouyelo-Katoula (w/AfDB)	April 2018
Expanding quality indicators	Further investigate using the proposed new quality indicators in Asia. Research calculating PPPs with weights derived from the proposed indicators.	Kaushal Joshi (w/ADB)	September 2018
Researching definitions	Further research definitions for modern and traditional dwellings.	Global ICP Unit	September 2018

The Global ICP Unit will save the presentation and files in the Task Force's OneDrive folder and the ICP website.

The next meeting of the Task Force will be organized in conjunction with the Inter-Agency Coordination Group meeting in September 2018.

Annex 1: Meeting Agenda

2nd Meeting of the Housing Task Force
March 12, 2018
World Bank, 1818 H St. NW, Washington, DC

Agenda

09:00 – 09:15   **Task Force task list and meeting objectives**, Alan Heston, University of Pennsylvania, and Inyoung Song, Global ICP Unit, World Bank

09:15 – 09:45   **Background paper,** Alan Heston, University of Pennsylvania

09:45 – 10:30   **Housing metadata questionnaire,** Michel Mouyelo-Katoula, African Development Bank, and Inyoung Song, Global ICP Unit, World Bank

10:30 – 11:00   **Regional approaches**
  − Africa, Michel Mouyelo- Katoula, African Development Bank
  − Asia and the Pacific, Kaushal Joshi, Asian Development Bank

11:30 – 12:00   **Residential capital stock estimates,** Alan Heston, University of Pennsylvania

12:00 – 12:30   **Conclusions and recommendations,** Alan Heston, University of Pennsylvania

Annex 2: List of Participants

<u>Task Force Members</u>
- Alan Heston, University of Pennsylvania [Task Force Coordinator]
- Michel Mouyelo- Katoula, African Development Bank Consultant
- Kaushal Joshi, Asian Development Bank
- Paulus Konijn, Eurostat
- Bettina Aten, United States Bureau of Economic Analysis
- Yuri Dikhanov, World Bank
- Inyoung Song, World Bank

<u>Global ICP Unit</u>
- Nada Hamadeh, World Bank
- Marko Olavi Rissanen, World Bank
- Mizuki Yamanaka, World Bank
- Maurice Nsabimana, World Bank
- William Vigil Oliver, World Bank
- Hanan Abu Shanab, World Bank

<u>Regional Implementing Agencies</u>
- Fessou Emesan Lawson, African Development Bank
- Gregoire Mboya Deloubassou, African Development Bank
- Rees Mpofu, African Development Bank
- Valerica Accibas, Interstate Statistical Committee of the Commonwealth of Independent States
- Francette Koechlin, OECD
- Bruno Lana, UN Economic Commission for Latin America and the Caribbean
- Maria Paz Collinao, UN Economic Commission for Latin America and the Caribbean
- Norma Chhab-Alperin, UN Economic Commission for Latin America and the Caribbean Consultant
- Majed Skaini, UN Economic and Social Commission for Western Asia

<u>Other Participants</u>
- Sunil Jain, India Ministry of Statistics and Programme Implementation
- Margarida Martins, International Monetary Fund
- Marshall Reinsdorf, International Monetary Fund
- Vasily Kuznetsov, Russian Federal State Statistics Service
- Sergey Sergeev, Statistics Austria
- Sharne Bailey, UK Office for National Statistics
- Erwin Diewert, University of British Columbia
- Luigi Biggeri, University of Florence
- Robert Hill, University of Graz
- Prasada Rao, University of Queensland