

## ROLLING PRICE SURVEY APPROACH AND ICP 2020

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## Introduction

Improvements in the coverage and timeliness of ICP regional and global comparisons have resulted in greater usage of PPPs and a demand for more frequent comparisons.<sup>1</sup> In recognition of this development, the Friends of the Chair in their evaluation of ICP 2011 for the United Nations Statistical Commission (UNSC)<sup>2</sup> proposed that the ICP reduce the interval between reference years from six to three years by adopting the rolling price survey approach (RPSA)<sup>3</sup>. The UNSC endorsed the proposal at its 47<sup>th</sup> session in March 2016<sup>4</sup>. It recommended that in future reference years should be every three years and that the RPSA should be the means to bring this about. The next reference year would be 2020 – that is three years after the current reference year 2017 – and the regional and global comparisons for 2020 would be made applying, to the extent possible, the RPSA.

The task of determining how to realise the UNSC’s recommendations was assigned to the ICP Taskforce for Country Operational Guidelines and Procedures. To date the Taskforce has met three times at the World Bank in Washington: on October 25, 2017; March 2, 2018; and September 27, 2018.<sup>5</sup> The 2020 implementation of the RPSA was discussed at all three meetings, but the discussions were limited and inconclusive. The Taskforce was preoccupied with the more immediate concerns of ICP 2017 and the residual issues of ICP 2011, while the regional coordinators participating in the deliberations were not enthusiastic about the immediate transition to the RPSA.

## The paper

The paper covers the points considered by the Taskforce during its discussions of the proposed adoption of the RPSA in ICP 2020. It starts with an explanation of how the RPSA operates. For this, it draws heavily on the experience of the European Union (EU) and the OECD, the EU-OECD region being the only region using the approach at present.<sup>6</sup> On the basis of this experience the paper contends that, if the ICP is to combine its six regions in a global comparison employing the RPSA, all regions will have to adopt the approach and all will have to work closely together respecting a common timetable. A timetable for an ICP price survey similar to one followed by the European Union is included to illustrate what is required. Drawing up the timetable is one of the three steps described under implementation.

While the paper emphasises the importance of keeping to the timetable, it recognises that the need for rigorous adherence to the timetable could be an impediment to some regions adopting the RPSA, at least for ICP 2020, given that they are autonomous and have different administrative and financial constraints. A more immediate obstacle to RPSA implementation in ICP 2020 is that price collection

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<sup>1</sup> Prior to ICP 2005, the reasons given for not using PPPs were that country coverage was poor, results were published too late and comparisons were not frequent enough. ICP 2005 and ICP 2011 covered 146 and 199 countries respectively and their results were published two years after the reference year in line with the availability of GDP estimates for the reference year. Only the frequency issue remained to be resolved.

<sup>2</sup> <http://unstats.un.org/unsd/statcom/47th-session/documents/2016-9-FOC-group-on-evaluation-of-2011-round-of-ICP-E.pdf> .

<sup>3</sup> Originally the approach was called the “rolling benchmark approach”. This was subsequently changed to the “rolling survey approach” (see second edition of Eurostat-OECD Methodological Manual). It is currently referred to as the “rolling price survey approach” which is more precise.

<sup>4</sup> [http://unstats.un.org/unsd/statcom/47th-session/documents/Decisions\\_final\\_unedited.pdf](http://unstats.un.org/unsd/statcom/47th-session/documents/Decisions_final_unedited.pdf) .

<sup>5</sup> A fourth meeting is scheduled for May 2-3, 2019 at the OECD in Paris.

<sup>6</sup> The explanation serves to define the approach; it is not a blueprint that regions wishing to switch to the approach have to follow to the letter. A distinction has to be made between what is essential to the approach and what are just regional differences in the way things are organised for a comparison. For example, collecting prices for a reference year over three-years is one of the defining features of the approach but collecting point-in-time prices, as do the participants of EU and OECD comparisons, is not. Regions that collect prices quarterly do not have to start collecting point-in-time prices when moving to the approach. They do, of course, have to spread price collection over three years.

for ICP 2020 should start in 2019 and, except in the EU-OECD region, it has not. Since the last Taskforce meeting regions have clarified their participation in ICP 2020. The paper ends with summaries of how regions propose to collect data for ICP 2020.

Seven tables accompany the text. They are grouped together after the text for convenience. Two annexes are attached to the paper. Annex 1 lists the current data requirements of EU, OECD and ICP comparisons. It serves primarily as an aide-memoire. Annex 2 explains in detail the data that will underlie the EU comparisons for 2017, 2018, 2019 and 2020 and the OECD comparisons for 2017 and 2020. It supplements the explanation of the RPSA in the text.

## Background

The RPSA was developed by the European Union and the OECD in the early 1990s when their comparisons were made every five years<sup>7</sup> parallel with ICP comparisons (1980, 1985 and 1990). The approach was designed specifically to meet two objectives: the increase in the frequency of comparisons desired by users within the European Commission and the OECD Secretariat and the easing of response burden demanded by participating countries. The same objectives that the ICP is being pressed to meet globally. They were achieved through the introduction of continuous price collection and by spreading the collection of prices for a reference year over three years.

Continuous price collection made it easier for participating countries to include the data collections for EU and OECD comparisons in their national data collection programmes. It also fostered continuity of expertise in their national statistical institutes, expertise which was often dissipated during the five-year gap between reference years. Collecting prices for a reference year over three years allowed more time for the creation of product lists which led to a more balanced selection of products and improved product specifications. It also allowed greater flexibility in the design of survey frameworks: they could be better tailored to suit the outlet distribution profiles of the products being priced. And, while it did not reduce response burden in terms of the amount of data to be collected, it made it easier for countries to shoulder the burden. These are all advantages from which the ICP could benefit by adopting the RPSA. The easing of response burden is a particularly important consideration for the ICP given that making comparisons every three years instead of every six doubles the amount of data that participants are expected to provide.

Depending on how data collection is organised, comparisons with the RPSA can be made either every year or every three years. Since 1990, comparisons have been made every year for the European Union (1991, 1992, 1993, etc.) and every three years for the OECD (1993, 1996, 1999, etc.)<sup>8</sup>. Of special relevance to the ICP is the European Union's experience between 1999 and 2013. During this period, participating countries were divided into groups. The groups had to be coordinated and supervised by Eurostat<sup>9</sup> so that they could be combined in one comparison covering all EU member states and EU candidate countries. The situation that Eurostat faced then is similar to that which the ICP faces now, namely, how to combine the groups/regions in a single comparison employing the RPSA.

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<sup>7</sup> This required participating countries to collect a substantial amount of detailed data every fifth year: just as countries participating in recent ICP comparisons have had to collect a similar volume of data every sixth year. A number of influential participants resented this demand for additional data. It invariably had to be funded either in whole or in part from their regular budget thereby consuming resources that they felt would be better spent meeting national data requests. They expressed a reluctance to continue their participation unless there was some levelling of the five-year spike (peak) in data requirements. This coincided with a call from users within the European Commission and the OECD Secretariat for a shorter period between reference years.

<sup>8</sup> The OECD is currently in the process of moving to annual comparisons.

<sup>9</sup> The Statistics Office of the European Union.

Regions are combined using inter-region linking factors derived from the prices they collect for core products – core products being the goods and services that have been selected to be priced across all regions. Prices of core products are collected and validated at the same time as prices of regional products. After regional validation, the prices for core products go through an additional validation at the global level – the inter-region validation - whereby core product prices are edited across regions. Like the other levels of validation, inter-region validation should be undertaken as soon as possible after price collection in order to have time to verify and correct the outliers identified and avoid having to discard them mechanically through lack of time. Discarding prices of core products that are outliers just because they are outliers could adversely affect the inter-region linking factors. This is circumvented by regions collecting and validating the prices of core products at roughly the same time.

If the ICP adopts the RPSA, regions will continue to be combined with linking factors generated by the global comparison of core product prices. But, as Eurostat's experience indicates, regions will have to adhere to the global timetable more rigorously than they do at present. Respecting deadlines will be especially important as the RPSA allows little time for slippage in data delivery dates.

### Rolling price survey approach

The RPSA makes comparisons employing a mix of current data and extrapolated and retroplated data. PPPs are calculated with prices that have been collected in the reference year  $t$  or prices that have been collected in the year  $t-1$  or the year  $t+1$ . Prices surveyed in year  $t$  can be used directly in the calculation of the PPPs, but those surveyed in year  $t-1$  and year  $t+1$  have to be either extrapolated or retroplated to year  $t$  before they can be included in the calculation. The extrapolation or retroplation is done at the basic heading level with temporal adjustment coefficients.

Price collection is cyclical. The price surveys are repeated every three years. The prices of goods and services surveyed in year  $t-1$  are resurveyed in year  $t+2$ ; those surveyed in year  $t$  are resurveyed in year  $t+3$ ; and those surveyed in year  $t+1$  are resurveyed in year  $t+4$ . The products to be priced and their specifications are updated and revised between surveys. So, for example, the products priced in year  $t+2$  will not necessarily be the same products or have the same characteristics as those that were priced in year  $t-1$  even though they are from the same product group.

In theory the approach can be employed to collect prices for all types of goods and services comprising final expenditure on GDP but in practice it is not. The European Union and the OECD only use the approach to collect prices for consumer goods and services, the most demanding of the data collections. It is not used to collect prices for housing services, government services and capital goods<sup>10</sup>. Prices for these goods and services are collected either in the reference year or retrospectively in the year following the reference year. They are collected every year for EU annual comparisons<sup>11</sup> and every three years for OECD three-year comparisons.

The RPSA is employed only for household consumption because, while EU and OECD countries usually have consumer price indexes (CPIs) with sub-indexes that can be extracted to serve as temporal adjustment coefficients with which to extrapolate or retroplated the prices collected for consumer products, they generally do not have measures that can provide suitable temporal adjustment coefficients for the other types of product priced. The situation is expected to be the same in the other regions with participating countries having temporal adjustment coefficients only for consumer goods and services. In adopting the RPSA, these regions, like the EU-OECD region, will

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<sup>10</sup> Machinery and equipment, residential and non-residential buildings, civil engineering works.

<sup>11</sup> Except machinery and equipment which are priced every two years.

only price household consumption over three years. Housing services, government services and capital goods will continue to be priced in the reference year or retrospectively in the following year. See Table 1.

### Household consumption

For their comparisons the European Union and the OECD break down household consumption into six price surveys. These are listed in Table 2 together with a summary of the types of product each survey covers. Two price surveys are conducted each year: one in the second quarter of the year, the other in the fourth quarter of the year. The prices collected are mostly point-in-time capital city prices which are subsequently converted to national annual average prices.<sup>12</sup>

Each survey has five phases - the preview, planning and pre-survey phase; the product list and survey guidelines creation phase; the price collection and intra-country validation phase; the inter-country validation phase; and the evaluation phase – as shown in the generalised EU timetable for the survey cycle in Table 3. For survey 1 and survey 2 preparation starts in year t-2, price collection takes place in year t-1 and processing ends in year t. Once the cycle is fully established, in any calendar year work is underway on all six surveys: the two surveys of the previous year are being finalised; the two surveys of the current year are being carried out; and the two surveys of the following year are being prepared.

Successful completion of each phase requires close cooperation between organisers and participants. To this end, organisers and participants in EU comparisons meet twice a year, in March and September, with organisers visiting participating countries once every two years. Organisers and participants in OECD comparisons meet once every two years with organisers visiting participating countries on an ad hoc basis: OECD comparisons cover a wide geographical dispersion of countries and resources are limited. In addition, the whole survey operation for EU comparisons is carried out with on-line tools developed by Eurostat that allow organisers and participants to follow the entire process of product list creation, price collection, validation and calculation which helps to ensure that they start and finish each step on time.<sup>13</sup>

### Temporal adjustment coefficients

The European Union and the OECD apply the temporal adjustment coefficients in two ways. First, they convert the point-in-time prices collected in the year t-1, the reference year t and the year t+1 to annual prices. The annual prices are used to calculate basic heading PPPs for each year. The temporal adjustment coefficients are then applied to extrapolate the PPPs of the basic headings priced in t-1 (but not priced in t or t+1) to t and to reproject the PPPs of the basic headings priced in t+1 (but not priced in t-1 or t) to t. Providing the CPI sub-index selected as temporal adjustment coefficient and the basic heading it is to adjust are sound, the accuracy of the extrapolation or reprojectation - that is, the degree to which the adjusted PPPs are close to the PPPs that would have been calculated had prices been collected in the reference year – will depend largely on the strength of the correlation between the coverage of the CPI sub-index and the coverage of the basic heading.

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<sup>12</sup> - The point-in-time capital city prices are converted first to national average prices with spatial adjustment coefficients then to annual national average prices with temporal adjustment coefficients. The spatial adjustment coefficients like the temporal adjustment coefficients are usually based on price data taken from the CPI.

<sup>13</sup> The on-line tools also allow participants to view each other's data. This provides transparency and fosters the building of trust between them which is important. A country's PPPs depend not only on its own price data but also on the price data of all other countries in the comparison. Its PPPs can therefore be adversely affected by errors in the data of other participants. A country needs to be able to satisfy itself that this is not the case.

The correspondence between the two is generally high for EU and OECD countries as their CPIs and the basic headings comprising household consumption are based on the same classification (COICOP<sup>14</sup>). Even so, not all basic headings are covered and not all CPI data are applicable for comparison purposes because their price concepts are different. A good example of the latter is the full market or total price concept for medical goods and services required for PPPs and the price actually paid by households required for the CPI. For such basic headings participating countries are still expected to provide temporal adjustment coefficients, if not from their CPI database then from another source. More generally when there is no CPI sub-index that exactly matches a basic heading, participating countries are expected to select a sub-index, or an aggregation of sub-indexes, that closely approximates the basic heading in question.

## Timetable

The RPSA works for EU and OECD comparisons because organisers and participants have agreed on a timetable which they strictly follow. The timetable used for EU comparisons is particularly detailed with the five phases of Table 3 broken down into steps with those responsible for the steps – organisers or participants or both – identified. See Table 5. The EU timetable allows very little catch up time which is to be expected with annual comparisons to be made. The OECD timetable is more flexible as comparisons are three-yearly, but this will change as the OECD moves to annual comparisons.

## EU comparisons 1999-2013

For EU comparisons household consumption is broken down into six price surveys. Prior to 1999, the six surveys were organised directly by Eurostat but in 1999 the number of countries participating in EU comparisons jumped from 20 to 31, which at the time was too many for the six surveys to continue to be managed centrally. Organisation was decentralised. Participating countries were divided into three groups and later, when the number of participants rose to 37, into four groups. Each group was headed by a group leader selected from among the countries in the group. The group leader was responsible for drawing up the group's product lists for the surveys in consultation with the other members of the group; visiting group members to ensure uniformity of product selection and pricing procedures; and editing the price data provided by group members.

The group leaders together with Eurostat were responsible for making sure that the product lists for the groups had a sufficient number of overlap (core) products at each basic heading so that comparisons could be made across groups. Eurostat oversaw the collaboration between groups and ensured a harmonised approach to the surveys by the groups. Group leaders met together twice a year, in early spring and early autumn, and twice a year with their groups, three or four weeks after the group leaders' meeting. Group leaders also attended the group meetings of other groups. The groups were discontinued in 2013.<sup>15</sup> Now the six surveys are managed centrally through a contractor overseen by Eurostat.

The period 1999 to 2013 is of interest because there are similarities between the EU setup as it was then and the setup the ICP is endeavouring to put in place for ICP 2020.<sup>16</sup> Then (as now) each of the

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<sup>14</sup> "Classification of Individual Consumption According to Purpose (COICOP)", Classification of Expenditure According to Purpose, United Nations, New York, 2000.

<sup>15</sup> More details about the groups and the survey process can be found in Chapter 5 of *Eurostat-OECD Methodological Manual on Purchasing Power Parities*, OECD, ISBN 978-92-64-18923-2

<sup>16</sup> The situations are not exactly the same. The groups were artificial constructs and not autonomous entities as are ICP regions. Group comparisons of themselves were not meaningful and were not published whereas regional comparisons are both meaningful and published. The groups were linked using overlap products which were defined as products selected to be priced in two or more groups. ICP core products are selected to be priced in all regions, although that does not mean they are.

six surveys took around 30 months to complete and each had the five phases identified in the generalised EU timetable for the survey cycle of Table 3. The phases were broken down into steps as shown in the generalised timetable for an EU survey of Table 5. Using these generalised timetables as templates, generalised timetables that illustrate how the survey cycle and survey steps could be ordered for ICP comparisons have been derived. These timetables are in Tables 4 and 6. They cover both the global comparison and the regional comparisons on the understanding that the breakdown and pricing of household consumption is the same for all regions.

### Survey cycle phases

Table 4 covers the five phases of a survey cycle. It is assumed that there will be three surveys – one survey a year – and that price collection will be quarterly over the survey year. Table 6 lists the steps of a survey together with who carries out the steps and when the steps are taken in relation to when prices are collected. Here too it is assumed that price collection will be quarterly over the survey year. Each survey will take around 36 months to complete.

From Table 4 it can be seen that in the reference year 2020, when the preview and planning phase and the pre-survey and product list creation phase for survey 3 are underway, work continues on surveys 1 and 2: the inter-country validation phase, the inter-region validation phase and the evaluation phase in the case of survey 1 and the price collection and intra-country validation phase in the case of survey 2. In terms of the survey steps in Table 6 this means that in 2020 steps 01 to 15 are being undertaken for survey 3; step 16, price collection and intra-country validation, is underway for survey 2; and steps 17 to 28 are being carried out for survey 1. Once the cycle comes round for the second time, recommencing in 2021, coordinators at all levels will be occupied with all three surveys each and every year of the cycle. A reorganisation of responsibilities within their offices may be necessary to accommodate this.

Table 6 is based on the assumption that there will be two regional coordinators' meetings a year, one in March the other in September, and that these meetings will be followed by regional meetings, also in March and September. It reflects the close collaboration and co-ordination that the surveys require between all parties involved: between countries within a region and between regions in the global context. In particular, the timely inter-region validation of core products will require regions to price the same basic headings at the same time. If they do not, and inter-region validation of core products is delayed until all regions have completed their price surveys, inter-region validation could become a mechanical exercise. Failure to verify outliers thoroughly is likely to be detrimental to the inter-region linking factors. If regions are unable to implement the RPSA in unison to the degree required by the validations of core product prices, perhaps the prices of core products should be collected by a special survey undertaken by all regions at the same time.

The RPSA worked for EU comparisons during the fourteen years reviewed because Eurostat, group leaders and participating countries agreed on the timetable together and then strictly kept to it. This practice continues today. Each year, in November, Eurostat reviews the survey timetable with participants. Coordination between the groups was also supported by the on-line tools mentioned earlier. These remain in use.

### Implementation – First step

Implementation starts by dividing household consumption in three equal parts and assigning each part to one of the three survey years. Division should be based on expenditure - each survey year should cover roughly one third of household final consumption expenditure - and on products by type and outlet distribution profile. The parts can be further divided. EU-OECD comparisons, for example, divide each part into two. See Table 2.

The requirements of the global comparison are an important consideration when making the division. From the perspective of the global comparison, it is essential that regions have a harmonised approach to price collection, that they price a sufficient number of core products and cover all basic headings, and that the inter-region validation of the prices of core products is timely and thorough. In terms of the RPSA this means that neither the division of household consumption into parts nor the choice of year in the survey cycle each part is to be surveyed should be left to the regions to decide for themselves by themselves. Otherwise it is likely that each region will have its own survey cycle and that the inter-region validation of the prices of the core products will have to wait until all regions have completed their price collections which, as already mentioned, could jeopardise the inter-region linking factors.

To avoid this all regions should follow the same survey cycle. Together they can either agree on their own schedule of surveys or agree to adopt the EU-OECD survey cycle which is tried and tested and well-established. Adopting the EU-OECD cycle does not mean following the EU-OECD practice of carrying out one survey in the first half of the year and the other survey in the second half of the year nor does it mean collecting point-in-time prices.<sup>17</sup> The two surveys can be combined or run in parallel and the frequency of data collection can be quarterly.

### Implementation – Second step

The second step towards implementation is matching the basic headings and temporal adjustment coefficients. In EU comparisons the coefficients are used first to convert the point-in-time prices to annual prices for the year in which they were collected. The annual prices are then used to calculate basic heading PPPs for the year. The temporal adjustment coefficients are then applied to extrapolate or retropolate the PPPs of the basic headings priced in non-reference years to the reference year. In other ICP regional comparisons, prices are collected quarterly and annual prices are calculated as the average of the four quarterly average prices. In which case, if the RPSA is adopted, temporal adjustment coefficients will be employed only to extrapolate and retropolate the basic headings of non-reference years.

The reliability of the RPSA depends on the degree to which the coverage of the temporal adjustment coefficients matches the coverage of the PPPs that they are to adjust. The greater the difference in coverage between the sub-index and the basic heading PPPs the weaker will be the correlation between them and the accuracy of the adjusted PPPs questionable. The coefficients are generally CPI sub-indexes or aggregations of CPI sub-indexes. The problem to be faced in this respect is that many of the countries participating in the ICP do not have CPIs that are sufficiently detailed to construct a sub-index specific for each of the 110 ICP basic headings comprising household consumption. For many of the basic headings, these countries they will not be able to provide a sub-index that exactly matches the basic heading. Instead they will have to provide a sub-index that closely approximates<sup>18</sup> the basic heading.

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<sup>17</sup> Adopting the EU-OECD practice of conducting two surveys a year and collecting point-in-time prices may be worth considering as it will ease the response burden of participants and make it easier for them to meet regional and global deadlines. Point-in-time prices are converted to annual prices with temporal adjustment coefficients. Throughout the paper it is assumed that regions (other than the EU-OECD region) employing the RPSA will collect prices over the four quarters of each of the survey years and the annual average price will be the average of the quarterly average prices. The assumption that regions will continue to collect prices quarterly when following the RPSA is somewhat paradoxical given the reliance of the approach on temporal adjustment coefficients. Surely, if temporal adjustment coefficients are good enough for extrapolating and retropolating basic heading PPPs, they are also suitable for converting point-in-time prices to annual average prices? If they are not suitable what does that say about their suitability with regard to adjusting basic heading PPPs of non-reference years?

<sup>18</sup> “Closely approximate” remains undefined. Perhaps guidelines are needed.



One option is to use the sub-index specific to another basic heading covering similar type of products: such as adjusting the PPPs for the basic heading *other bakery products* with the sub-index specific to the basic heading *bread*. Another option, and probably the one more usually employed in practice, is to move up the classification hierarchy and use a sub-index covering a broader range of goods or services than that covered by the basic heading: for example, using the sub-index for the expenditure class *bread and cereals* to adjust the PPPs for the basic heading *other bakery products*. Note that the expenditure class also includes the basic headings *rice, other cereals and flour, and pasta products and couscous*.

Neither option is optimal, but at least with the second the sub-index includes, in theory at least, the goods or services covered by the basic heading. Moving one step up the hierarchy as in the example above is probably permissible as the adjustment is only over one year. But it is hard to justify moving further up the hierarchy and using a sub-index with a much wider coverage, such as the expenditure group *food*, instead.

### Implementation – Third step

Drawing up the global timetable and the regional timetables is the third step towards implementation. The global timetable is the master timetable giving the deadlines, such as the delivery dates of the various data sets required for the global comparison, that have been agreed by the global coordinator and the regional coordinators. It ensures that all regions are in unison, marching in step, in time, to the same tune. The regional timetables give the region-specific timelines agreed by the region's regional coordinator and national coordinators. They dovetail with the global timetable respecting the same deadlines. Adherence will ensure that participating countries too are in step, in time, marching to the same tune.

Drawing up the timetables involves working backwards and forwards in a top-down bottom-up series of iterations. The starting point is the proposed publication date of the global results. To begin with the timetables should not be too ambitious. Their schedules can be tightened up in later rounds when participants have become familiar with the approach. It is important to recognise what countries think is or is not feasible. A region may have to divide its countries into two tiers: those that can meet the global deadlines and those that cannot and have to be introduced into the comparison at a later date.

The generalised timetables in Tables 4 and 6 cover both global and regional comparisons on the assumption that the treatment of household consumption is the same for all regions. If this assumption does not hold with each region having its own survey schedule, the complete list of core products for ICP 2020 will have to be decided in 2018 before price collection begins and inter-region validation of core products may have to wait until the first half of 2022. Defining core products two or three years before they are to be priced does not seem good practice as products can drop out of the market to be replaced by new ones that may not be available in all regions or no longer comparable. As core products will not necessarily be priced in the same year this could complicate the inter-region validation as their prices may require temporal adjustment prior to validation. Apparent error may be due to the coefficient and not the observation.<sup>19</sup>

### ICP 2020

The UNSC recommended that the ICP reduce the interval between reference years from six to three years by adopting the RPSA. ICP 2017 would be followed by ICP 2020, and the comparisons for ICP

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<sup>19</sup> The PPPs of a country depend on the data of all countries and its PPPs can be adversely affected by errors in the price data of other participants. The quality of a country's PPP can also be influenced by the suitability of the temporal adjustment coefficients employed by other.

2020 would be made, to the extent possible, with the RPSA. Since the last meeting of the Taskforce, all six ICP regions have confirmed that they plan to make comparisons every three years starting with ICP 2020, but not necessarily with the RPSA. The RPSA is the means to an end and not the end itself. The shorter period between reference years is the end and can be achieved with approaches other than the RPSA. Africa, Asia, and the Commonwealth of Independent States (CIS) do not intend to use the RPSA in their comparisons for ICP 2020. LAC does plan to use the approach as does Western Asia which has begun to make annual comparisons using a variant of the approach. EU-OECD already employs the approach. See Table 7.

Table 7 has two boxes for each region. The first box shows how the region collected data for ICP 2017 and the second box shows how it proposes to collect data for ICP 2020. The capital letters in the Table – “H” for household consumption, “R” for household rentals, etc. – identify the year of collection and, unless indicated otherwise, the year to which data refer. When the collection year and reference year differ, the year to which the data refer is put in parentheses. For example, Africa collected housing rentals and housing volumes for 2017 in 2018. In the Table this is indicated by “R (2017)” and “V (2017)” in the column for 2018. Prices for household consumption that are extrapolated or retropolated are identified by an arrow: “H→” for extrapolation; “←H” for retropolation. Africa priced consumer goods and services for ICP 2017 in 2017 and 2018. The prices collected in 2018 were retropolated to 2017: hence the “←H” in the column for 2018. For Western Asia and EU-OECD the Table shows the data collected (or to be collected) for their annual comparisons. The data used for ICP 2017 and ICP 2020 are those in *italics*.

From the Table it can be seen that regions (other than Western Asia and EU-OECD) collected data for ICP 2017 either in the reference year (2017) or retrospectively in the following year (2018). Prices for consumer goods and services were collected quarterly and annual prices were calculated as the average of the four quarterly average prices. This avoided the need for temporal adjustment coefficients except for Africa where consumer prices were also collected in 2018. The prices collected for other goods and services were either annual prices or mid-year prices. Regions (other than LAC and Western Asia) intend to retain this approach for their ICP 2020 comparisons. Prices for household consumption will be collected over the four quarters of 2020. Housing rentals and mid-year prices for machinery and equipment and construction inputs will also be collected in 2020. Housing volumes and the compensation paid to government employees will be collected in 2021.

LAC will price one third of the basket of consumer goods and services in 2019, another third in 2020 and the final third in 2021. Prices will be collected quarterly and the basic heading PPPs for each year will be calculated with the average annual prices obtained by averaging the average quarterly prices for the year. Basic heading PPPs for 2019 (or the average annual prices on which they are based) will be extrapolated to 2020 while the basic heading PPPs for 2021 (or the average annual prices on which they are based) will be retropolated to 2020. Otherwise data collection will be the same as in other regions: housing rentals and mid-year prices for machinery and equipment and construction inputs collected in 2020; housing volumes and compensation of government employees collected in 2021.

Western Asia collects housing rentals, compensation of government employees and prices of machinery and equipment and construction inputs annually. Housing volumes are collected once every three years in line with ICP reference years. Consumer goods and service were priced in 2016 for ICP 2017 and will be priced in 2020 for ICP 2020. Consumer prices have not been collected in the intervening years. Basic heading PPPs for household consumption for these years are obtained by extrapolating or retropolating the average annual prices for 2016 or 2020.

Data collections for EU-OECD will be similar to LAC's except that the consumer prices collected will be point-in-time prices which will be converted to annual average prices with temporal adjustment coefficients.

**Table 1: Data collection under the rolling price survey approach**

Surveys	Year t-1	Year t	Year t+1	Year t+2	Year t+3	Year t+4
<b>Household consumption</b>						
01. Prices consumer goods and services	X→			X→		
02. Prices consumer goods and services		X			X	
03. Prices consumer goods and services			←X			←X
<b>Other surveys</b>						
04. Housing services		X			X	
05. Government services		X			X	
06. Prices capital goods		X			X	
<b>Other data</b>						
07. Temporal adjustment coefficients	X	X	X	X	X	X
08. GDP expenditure weights		X			X	
09. Annual average exchange rates		X			X	
10. Annual average resident population		X			X	
Publication of results for reference year t			Preliminary	Intermediate	Final	

The table has two reference years, year t and year t+3, three years apart. As explained in the text, prices for consumer goods and services for a reference year are collected over three years: t-1, t and t+1 for reference year t; and t+2, t+3 and t+4 for reference year t+3. Prices not requiring year-to-year extrapolation or retropolation are indicated by “X”. Prices requiring year-to-year extrapolation or year-to-year retropolation are indicated by “X→” or “←X”.

With the exception of the surveys under household consumption, “X” indicates the year to which the data collected refer but, it does not necessarily indicate the year in which the data are collected. Either in part or in whole, data on housing services, government services and capital goods can often be collected retrospectively, in year t+1 for t and in year t+4 for t+3.

The estimates of GDP for the reference year t are compiled first in t+1 and finalised in t+3. (The corresponding years for the reference year t+3 are t+4 and t+6.)

Preliminary estimates of PPPs, price level indexes and volume indexes for the reference year t are published in t+1; intermediate estimates are published in t+2; and the final estimates in t+3. Until they are finalised PPPs and price level indexes can and do change. Once finalised they do not change though, as national accountants keep on refining their estimates of GDP, the weights and volume indexes will continue to change. (For the reference year t+3, results are published first in t+4, then in t+5 and finally in t+6.)

**Table 2: EU and OECD survey cycle**

<b>Cycle</b>	<b>Survey</b>	<b>Coverage</b>
<b>First year</b>	01. Food, drinks and tobacco	Food; non-alcoholic beverages; alcoholic beverages; tobacco.
	02. Personal appearance	Clothing; cleaning, repair and hire of clothing; footwear; goods and services for personal care; personal effects.
<b>Second year</b>	03. House and garden	Materials for the maintenance and repair of the dwelling; household appliances; glassware, tableware and household utensils; tools and equipment for house and garden; non-durable household goods such as products for routine cleaning and maintenance; telephone and telefax equipment; audio-visual, photographic and information-processing equipment; games, toys, hobbies, gardens, plants, flowers and pets; newspapers, books, stationery and drawing materials; electrical appliances for personal care.
	04. Transport, restaurants and hotels	Personal transport equipment; spare parts and accessories, fuels and lubricants for the operation of personal transport equipment; equipment for sport, camping and open-air recreation; catering services; accommodation services.
<b>Third year</b>	05. Services	Maintenance and repair services for the dwelling; water supply; fuels other than electricity and gas; domestic and household services; maintenance and repair services for personal transport equipment; transport services; postal services; telephone and telefax services; maintenance and repair services for major durables; veterinary and other services for pets; recreational and cultural services; other services not specified elsewhere.
	06. Furniture and health	Furniture, furnishings, carpets and other floor coverings; household textiles; medical products, appliances and equipment; out-patient services.

Electricity, gas, housing, hospital services and education are not included in the survey cycle as they are surveyed annually by the European Union and once every three years by the OECD. Other consumer goods and services, such as narcotics, combined passenger transport, major durables for outdoor and indoor recreation, games of chance, package holidays, prostitution, social protection, insurance, FISIM and other financial services, are also not included in the survey cycle either. This is because it is difficult to specify and price products for them that are comparable across countries. Reference PPPs are used for the basic headings containing these goods and services.

**Table 3: Generalised EU timetable for the survey cycle with reference year t**

Year	Half year	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5	Survey 6
<b>t-2 (2018)</b>	<b>1<sup>st</sup></b>	Preview, planning and pre-survey		<i>Evaluation</i>	<i>Inter-country validation</i>	<i>Price collection and intra-country validation</i>	<i>Creation of product list and survey guidelines</i>
	<b>2<sup>nd</sup></b>	Creation of product list and survey guidelines	Preview, planning and pre-survey		<i>Evaluation</i>	<i>Inter-country validation</i>	<i>Price collection and intra-country validation</i>
<b>t-1 (2019)</b>	<b>1<sup>st</sup></b>	Price collection and intra-country validation	Creation of product list and survey guidelines	Preview, planning and pre-survey		<i>Evaluation</i>	<i>Inter-country validation</i>
	<b>2<sup>nd</sup></b>	Inter-country validation	Price collection and intra-country validation	Creation of product list and survey guidelines	Preview, planning and pre-survey		<i>Evaluation</i>
<b>t (2020)</b>	<b>1<sup>st</sup></b>	<i>Evaluation</i>	Inter-country validation	Price collection and intra-country validation	Creation of product list and survey guidelines	Preview, planning and pre-survey	
	<b>2<sup>nd</sup></b>		<i>Evaluation</i>	Inter-country validation	Price collection and intra-country validation	Creation of product list and survey guidelines	Preview, planning and pre-survey
<b>t+1 (2021)</b>	<b>1<sup>st</sup></b>	<i>Preview, planning and pre-survey</i>		<i>Evaluation</i>	Inter-country validation	Price collection and intra-country validation	Creation of product list and survey guidelines
	<b>2<sup>nd</sup></b>	<i>Creation of product list and survey guidelines</i>	<i>Preview, planning and pre-survey</i>		<i>Evaluation</i>	Inter-country validation	Price collection and intra-country validation
<b>t+2 (2022)</b>	<b>1<sup>st</sup></b>	<i>Price collection and intra-country validation</i>	<i>Creation of product list and survey guidelines</i>	<i>Preview, planning and pre-survey</i>		<i>Evaluation</i>	Inter-country validation
	<b>2<sup>nd</sup></b>	<i>Inter-country validation</i>	<i>Price collection and intra-country validation</i>	<i>Creation of product list and survey guidelines</i>	<i>Preview, planning and pre-survey</i>		<i>Evaluation</i>

**Table 4: Generalised timetable for ICP reference year 2020**

Year	Half year	Household consumption		
		Survey 1	Survey 2	Survey 3
2018 (t-2)	1 <sup>st</sup>	Regional and global planning; timetables; creation of product list with core products; defining survey guidelines		
	2 <sup>nd</sup>			
2019 (t-1)	1 <sup>st</sup>	Price collection; intra-country validation	Regional and global planning; timetables; creation of product list with core products; defining survey guidelines	
	2 <sup>nd</sup>			
2020 (t)	1 <sup>st</sup>	Inter-country validation; inter-region validation of core products	Price collection; intra-country validation	Regional and global planning; timetables; creation of product list with core products; defining survey guidelines
	2 <sup>nd</sup>	Evaluation		
2021 (t+1)	1 <sup>st</sup>	<i>Regional and global planning; timetables; creation of product list with -core products; defining survey guidelines</i>	Inter-country validation; inter-region validation of core products	Price collection; intra-country validation
	2 <sup>nd</sup>		Evaluation	
2022 (t+2)	1 <sup>st</sup>	Price collection; intra-country validation	<i>Regional and global planning; timetables; creation of product list with -core products; defining survey guidelines</i>	Inter-country validation; inter-region validation of core products
	2 <sup>nd</sup>			Evaluation
2023 (t+3)	1 <sup>st</sup>	Inter-country validation; inter-region validation of core products	Price collection; intra-country validation	Regional and global planning; timetables; creation of product list with -core products;

**Table 5: Generalised timetable for an EU survey**

Phase	Step	Who	When		
			Month vis-à-vis month of price collection	Survey 1 of year t	Survey 2 of year t
Preview and planning	01. First discussion of main issues at group leaders' meeting	Group leaders; Eurostat; OECD	t-13	Mar (t-1)	Sep (t-1)
	02. Main issues discussed at group meetings	NSIs; group leaders; Eurostat; OECD	t-13	Mar (t-1)	Sep (t-1)
	03. Preview questions sent to NSIs	Group leaders	t-11	May (t-1)	Nov (t-1)
	04. Preview answers sent to group leaders	NSIs	t-8	Aug (t-1)	Feb (t)
	05. Planning decisions prepared by group leaders' meeting	Group leaders; Eurostat; OECD	t-7	Sep (t-1)	Mar (t)
	06. Planning decisions agreed at group meetings	NSIs; group leaders; Eurostat; OECD	t-7	Sep (t-1)	Mar (t)
Pre-survey and product list creation	07. Pre-survey product list ready	Group leaders	t-5	Nov (t-1)	May (t)
	08. Pre-survey	NSIs	t-4 to t-3	Dec (t-1)-Jan (t)	Jun-Jul (t)
	09. Draft group product lists ready	Group leaders	t-2	Feb (t)	Aug (t)
	10. First draft of European product list ready	Eurostat	t-2	Feb (t)	Aug (t)
	11. First draft European product list discussed at group leaders' meeting	Group leaders; Eurostat; OECD	t-1	Mar (t)	Sep (t)
	12. Second draft European product list ready	Eurostat	t-1	Mar (t)	Sep (t)
	13. Second draft European Product list discussed at group meetings	NSIs; group leaders; Eurostat; OECD	t-1	Mar (t)	Sep (t)
	14. Follow up meeting of group leaders	Group leaders; Eurostat; OECD	t-1	Mar (t)	Sep (t)
Price collection and intra-country validation	15. Final European product list ready	Group leaders; Eurostat	t-1	Mar (t)	Sep (t)
	16. Price collection and intra-country validation	NSIs	t to t+2	Apr-Jun (t)	Oct-Dec (t)
Validation	17. Price file and sections 1,2, 3 and 5 of survey report sent to Eurostat	NSIs	t+2	Jun (t)	Dec (t)
	18. Data cleaning and checking	NSIs; group leaders	t+2 to t+3	Jun-Jul (t)	Dec (t)-Jan (t+1)
	19. 1 <sup>st</sup> European Quaranta table calculated	Eurostat	t+3	Jul (t)	Jan (t+1)
	20. Spatial adjustment factors sent to Eurostat	NSIs	t+3	Jul (t)	Jan (t+1)
	21. Analysis of 1 <sup>st</sup> European Quaranta table	NSIs; group leaders	t+3 to t+4	Jul-Aug (t)	Jan-Feb (t+1)
	22. 1 <sup>st</sup> European Quaranta table discussed at group leaders' meeting	Group leaders; Eurostat; OECD	t+5	Sep (t)	Mar (t+1)
	23. 1 <sup>st</sup> European Quaranta table discussed at group meetings	NSIs; group leaders; Eurostat; OECD	t+5	Sep (t)	Mar (t+1)
	24. 2 <sup>nd</sup> European Quaranta table calculated	Eurostat	t+6	Sep (t)	Mar (t+1)
	25. Continuation of validation	NSIs; group leaders; Eurostat	t+6	Oct (t)	Apr (t+1)
	26. Approval of survey results and closure of validation	NSIs; group leaders	t+6	Oct (t)	Apr (t+1)
Evaluation	27. Section 4 of survey report sent to Eurostat	NSIs	t+7	Nov (t)	May (t+1)
	28. Group leader survey reports to Eurostat	Group leaders	t+9	Jan (t+1)	Jul (t+1)
	29. Evaluation at group leaders' meeting	Group leaders; Eurostat; OECD	t+11	Mar (t+1)	Sep (t+1)
	30. Evaluation at group meetings	NSIs; group leaders; Eurostat; OECD	t+11	Mar (t+1)	Sep (t+1)



**Table 6: Generalised timetable for an ICP survey**

Phase	Step	Who	When
<b>Preview and planning</b>	01. First discussion of main issues at <b>regional coordinators' meeting</b>	Global and regional coordinators	Sep (t-2)
	02. Main issues discussed at <b>regional meetings</b>	NSIs; global and regional coordinators	Sep (t-2)
	03. Preview questions sent to NSIs	Regional coordinators	Nov (t-2)
	04. Preview answers sent to regional coordinators	NSIs	Feb (t-1)
	05. Planning decisions prepared by <b>regional coordinators' meeting</b>	Global and regional coordinators	Mar (t-1)
	06. Planning decisions agreed at <b>regional meetings</b>	NSIs; global and regional coordinators	Mar (t-1)
<b>Pre-survey and product list creation</b>	07. Pre-survey product list ready	Regional coordinators	Apr (t-1)
	08. Pre-survey	NSIs	May-Jun (t-1)
	09. Draft regional product lists ready	Regional coordinators	Jul (t-1)
	10. First draft of global product list ready	Global coordinator	Jul (t-1)
	11. First draft global product list discussed at <b>regional coordinators' meeting</b>	Global and regional coordinators	Sep (t-1)
	12. Second draft global product list ready	Global coordinator	Sep (t-1)
	13. Second draft global product list discussed at <b>regional meetings</b>	NSIs; global and regional coordinators	Sep (t-1)
	14. Follow up meeting of regional coordinators	Global and regional coordinators	Sep (t-1)
	15. Final global product list ready	Global and regional coordinators	Oct (t-1)
<b>Price collection and intra-country validation</b>	16. Price collection and intra-country validation	NSIs	Jan-Dec (t)
<b>Validation</b>	17. Data cleaning and checking	NSIs; regional coordinators	Apr (t)-Feb (t+1)
	18. 1 <sup>st</sup> global and regional Quaranta tables calculated	Global and regional coordinators	Feb (t+1)
	19. Analysis of 1 <sup>st</sup> global and regional Quaranta tables	NSIs; global regional coordinators	Mar (t+1)
	20. 1 <sup>st</sup> global and regional Quaranta tables discussed at <b>regional coordinators' meeting</b>	Global and regional coordinators	Mar (t+1)
	21. 1 <sup>st</sup> global Quaranta table discussed at <b>regional meetings</b>	NSIs; global and regional coordinators	Mar (t+1)
	22. 2 <sup>nd</sup> global and regional Quaranta tables calculated	Global and regional coordinators	Apr (t+1)
	23. Continuation of validation	NSIs; global and regional coordinators	Apr-May (t+1)
	24. Approval of survey results and closure of validation	NSIs; regional coordinators	Jun (t+1)
<b>Evaluation</b>	25. Country survey reports sent to regional coordinator	NSIs	Jul (t+1)
	26. Regional coordinators' survey reports sent to global coordinator	Regional coordinators	Jul (t+1)
	27. Evaluation at <b>regional coordinators' meeting</b>	Global and regional coordinators	Sep (t+1)
	28. Evaluation at <b>regional meetings</b>	NSIs; global and regional coordinators	Sep (t+1)

**Table 7: Data collections undertaken for ICP 2017 and planned for ICP 2020 by region**

AFRICA	ICP 2017			
	2016	2017	2018	2019
Household consumption (H)		H	←H	PUBLICATION OF 2017 RESULTS
Housing rentals (R)			R (2017)	
Housing volumes (V)			V (2017)	
Government compensation (G)			G (2017)	
Machinery and equipment (M)		M	M (2017)	
Construction and civil engineering (C)			C (2017)	
National accounts expenditures (E)	E (2015)	E (2016)	E (2017)	
CPIs, deflators, population, exchange rates	X	X	X	

AFRICA	ICP 2020			
	2019	2020	2021	2022
Household consumption (H)		H		PUBLICATION OF 2020 RESULTS
Housing rentals (R)		R		
Housing volumes (V)			V (2020)	
Government compensation (G)			G (2020)	
Machinery and equipment (M)		M		
Construction and civil engineering (C)		C		
National accounts expenditures (E)	E (2018)	E (2019)	E (2020)	
CPIs, deflators, population, exchange rates	X	X	X	

ASIA	ICP 2017			
	2016	2017	2018	2019
Household consumption (H)		H	←H	PUBLICATION OF 2017 RESULTS
Housing rentals (R)			R (2017)	
Housing volumes (V)			V (2017)	
Government compensation (G)			G (2017)	
Machinery and equipment (M)			M (2017)	
Construction and civil engineering (C)			C (2017)	
National accounts expenditures (E)	E (2015)	E (2016)	E (2017)	
CPIs, deflators, population, exchange rates	X	X	X	

ASIA	ICP 2020			
	2019	2020	2021	2022
Household consumption (H)		H		PUBLICATION OF 2020 RESULTS
Housing rentals (R)		R		
Housing volumes (V)			V (2020)	
Government compensation (G)			G (2020)	
Machinery and equipment (M)		M		
Construction and civil engineering (C)		C		
National accounts expenditures (E)	E (2018)	E (2019)	E (2020)	
CPIs, deflators, population, exchange rates	X	X	X	

Table 7: Data collections undertaken for ICP 2017 and planned for ICP 2020 by region (contd.)

COMMONWEALTH OF INDEPENDENT STATES	ICP 2017			
	2016	2017	2018	2019
Household consumption (H)		H		PUBLICATION OF 2017 RESULTS
Housing rentals (R)			R (2017)	
Housing volumes (V)			V (2017)	
Government compensation (G)			G (2017)	
Machinery and equipment (M)		M		
Construction and civil engineering (C)		C		
National accounts expenditures (E)	E (2015)	E (2016)	E (2017)	
CPIs, deflators, population, exchange rates	X	X	X	

COMMONWEALTH OF INDEPENDENT STATES	ICP 2020			
	2019	2020	2021	2022
Household consumption (H)		H		PUBLICATION OF 2020 RESULTS
Housing rentals (R)		R		
Housing volumes (V)			V (2020)	
Government compensation (G)			G (2020)	
Machinery and equipment (M)		M		
Construction and civil engineering (C)		C		
National accounts expenditures (E)	E (2018)	E (2019)	E (2020)	
CPIs, deflators, population, exchange rates	X	X	X	

LATIN AMERICA AND CARIBBEAN	ICP 2017			
	2016	2017	2018	2019
Household consumption (H)		H	← H	PUBLICATION OF 2017 RESULTS
Housing rentals (R)			R (2017)	
Housing volumes (V)			V (2017)	
Government compensation (G)			G (2017)	
Machinery and equipment (M)			← M	
Construction and civil engineering (C)			← C	
National accounts expenditures	E (2015)	E (2016)	E (2017)	
CPIs, deflators, population, exchange rates	X	X	X	

LATIN AMERICA AND CARIBBEAN	ICP 2020			
	2019	2020	2021	2022
Household consumption (H)	H (1/3)→	H (1/3)	← H (1/3)	PUBLICATION OF 2020 RESULTS
Housing rentals (R)		R		
Housing volumes (V)			V (2020)	
Government compensation (G)			G (2020)	
Machinery and equipment (M)		M		
Construction and civil engineering (C)		C		
National accounts expenditures (E)	E (2018)	E (2019)	E (2020)	
CPIs, deflators, population, exchange rates	X	X	X	

Table 7: Data collections undertaken for ICP 2017 and planned for ICP 2020 by region (contd.)

WESTERN ASIA	ICP 2017			
	2016	2017	2018	2019
Household consumption (H)	<i>H</i> →	→	→	PUBLICATION OF 2017 RESULTS
Housing rentals (R)	R	<i>R</i>	R	
Housing volumes (V)			<i>V (2017)</i>	
Government compensation (G)	G	<i>G</i>	G	
Machinery and equipment (M)	M	<i>M</i>	M	
Construction and civil engineering (C)	C	<i>C</i>	C	
National accounts expenditures	E (2015)	E (2016)	<i>E (2017)</i>	
CPIs, deflators, population, exchange rates	<i>X</i>	<i>X</i>	<i>X</i>	

WESTERN ASIA	ICP 2020			
	2019	2020	2021	2022
Household consumption (H)		← <i>H</i> →		PUBLICATION OF 2020 RESULTS
Housing rentals (R)	R	<i>R</i>	R	
Housing volumes (V)			<i>V (2020)</i>	
Government compensation (G)	G	<i>G</i>	G	
Machinery and equipment (M)	M	<i>M</i>	M	
Construction and civil engineering (C)	C	<i>G</i>	G	
National accounts expenditures (E)	E (2018)	E (2019)	<i>E (2020)</i>	
CPIs, deflators, population, exchange rates	<i>X</i>	<i>X</i>	<i>X</i>	

EU-OECD	ICP 2017			
	2016	2017	2018	2019
Household consumption (H)	<i>H (1/3)</i> →	<i>H (1/3)</i>	← <i>H (1/3)</i>	PUBLICATION OF 2017 RESULTS
Housing rentals (R)	R	<i>R</i>	R	
Housing volumes (V)	V	<i>V</i>	V	
Government compensation (G)	G	<i>G</i>	G	
Machinery and equipment (M)	M (2015,2017)	<i>M</i>	M (2017,2019)	
Construction and civil engineering (C)	C	<i>C</i>	C	
National accounts expenditures	E (2015)	E (2016)	<i>E (2017)</i>	
CPIs, deflators, population, exchange rates	<i>X</i>	<i>X</i>	<i>X</i>	

EU-OECD	ICP 2020			
	2019	2020	2021	2022
Household consumption (H)	<i>H (1/3)</i> →	<i>H (1/3)</i>	← <i>H (1/3)</i>	PUBLICATION OF 2020 RESULTS
Housing rentals (R)	R	<i>R</i>	R	
Housing volumes (V)	V	<i>V</i>	V	
Government compensation (G)	G	<i>G</i>	G	
Machinery and equipment (M)	M	<i>M</i> (2019,2021)	M	
Construction and civil engineering (C)				
National accounts expenditures	E (2018)	E (2019)	<i>E (2020)</i>	
CPIs, deflators, population, exchange rates	<i>X</i>	<i>X</i>	<i>X</i>	

## Annex 1: Current Data Requirements of EU, OECD and ICP Comparisons <sup>(1)</sup>

Data	Survey	Frequency of collection		
		EU	OECD	ICP
Prices	01. Food, drinks and tobacco	Every three years	Every three years	Every six years
	02. Personal appearance	..	..	
	03. House and garden	..	..	
	04. Transport, restaurants and hotels	..	..	
	05. Services	..	..	
	06. Furniture and health <sup>(2)</sup>	..	..	
	07. Machinery and equipment	Every two years	..	..
	08. Construction projects	Every year	..	..
	09. Compensation of government employees <sup>(3)</sup>	..	..	..
	10. Hospital services	..	..	..
	11A. Housing	..	..	Every six years
Quantity and quality indicators	11B. Housing <sup>(4)</sup>	..	..	..
	12. Education	..	..	..
Expenditures	13. GDP expenditure weights	..	..	Every six years
Other	14. Spatial adjustment coefficients <sup>(5)</sup>	Every six years <sup>(6)</sup>	..	..
	15. Temporal adjustment coefficients	Every year	Every year	Every six years
	16. Global rate for VAT paid on capital goods <sup>(5)</sup>	..	..	..
	17. Global rate for tips to waiters and hairdressers <sup>(5)</sup>	..	..	..
	18. Annual average exchange rates	..	Every three years	Every six years
	19. Annual average resident population	..	..	..

<sup>(1)</sup> EU comparisons are made every year; OECD comparisons are made every three years; ICP comparisons are made every six years.

<sup>(2)</sup> Pharmaceutical products, medical goods, therapeutic appliances and out-patient medical services but not in-patient medical services.

<sup>(3)</sup> Collective services, government-produced hospital services and government-produced education services.

<sup>(4)</sup> Countries with small or unrepresentative rent markets provide data on the housing stock instead of prices.

<sup>(5)</sup> Not required from countries participating in OECD and ICP comparisons as they report national prices with non-deductible VAT and tips as appropriate.

<sup>(6)</sup> Spatial adjustment coefficients are reported each year but only for the consumer price surveys conducted in that year. They have to be updated at least once every six years.

## Annex 2: Rolling Price Survey Approach

The annex contains two tables with explanatory notes. Table A shows the data on which the EU comparisons for 2017, 2018, 2019 and 2020 will be based and Table B shows the data on which the OECD comparisons for 2017 and 2020 will be based. Each comparison uses either new data collected for the reference year or data “rolled over” from a previous year or “rolled back” from a subsequent year. To illustrate how the data are combined, the notes explain in detail how the PPPs and real expenditures for 2017 will be obtained.

**Table A: Input data for EU comparisons for reference years 2017 to 2020**

Data	Survey	Reference year			
		2017	2018	2019	2020
Prices	01. Food, drinks and tobacco	2018-1	2018-1	2018-1	2021-1
	02. Personal appearance	2018-2	2018-2	2018-2	2021-2
	03. House and garden	2016-1	2019-1	2019-1	2019-1
	04. Transport, restaurants and hotels	2016-2	2019-2	2019-2	2019-2
	05. Services	2017-1	2017-1	2020-1	2020-1
	06. Furniture and health	2017-2	2017-2	2020-2	2020-2
	07. Machinery and equipment	2017	2017, 2019	2019	2019, 2021
	08. Construction projects	2017	2018	2019	2020
	09. Compensation of government employees	2017	2018	2019	2020
	10. Hospital services	2017	2018	2019	2020
	11A. Housing	2017	2018	2019	2020
Quantity and quality indicators	11B. Housing	2017	2018	2019	2020
	12. Education	2017	2018	2019	2020
Expenditures	13. GDP expenditure weights	2017	2018	2019	2020
Other	14 Spatial adjustment coefficients	2016, 2017, 2018	2017, 2018, 2019	2018, 2019, 2020	2019, 2020, 2021
	15. Temporal adjustment coefficients	2016, 2017, 2018	2017, 2018, 2019	2018, 2019, 2020	2019, 2020, 2021
	16. Global rate for VAT paid on capital goods	2017	2018	2019	2020
	17. Global rate for tips to waiters, etc.	2017	2018	2019	2020
	18. Annual average exchange rates	2017	2018	2019	2020
	19. Annual average resident population	2017	2018	2019	2020

### Notes on Table A

The PPPs and real expenditures for 2017 will be calculated with:

- The national or capital city prices for the consumer products covered by surveys 01 and 02 that were collected respectively in the first and second halves of 2018. The capital city prices have been converted to national prices with the spatial adjustment coefficients reported in 2018 for the two surveys. The national prices have been converted to annual prices with the temporal adjustment coefficients for 2018. The annual prices have been used to calculate PPPs for 2018 for the basic headings covered by the two surveys. These basic heading PPPs for 2018 have been taken back to 2017 with the temporal adjustment coefficients for 2017.
- The national or capital city prices for the consumer products covered by surveys 03 and 04 that were collected respectively in the first and second halves of 2016. The capital city prices have been converted to national prices with the spatial adjustment coefficients reported in 2016 for the two surveys. The national prices have been converted to annual prices with the temporal adjustment coefficients for 2016. The annual prices have been used to calculate PPPs for 2016 for

the basic headings covered by the two surveys. These basic heading PPPs for 2016 have been advanced to 2017 using the temporal adjustment coefficients for 2017.

- The national or capital city prices for the consumer products covered by surveys 05 and 06 that were collected respectively in the first and second halves of 2017. The capital city prices have been converted to national prices with the spatial adjustment coefficients reported in 2017 for the two surveys. The national prices have been converted to annual prices using the temporal adjustment coefficients for 2017. The annual prices have been used to calculate PPPs for 2017 for the basic headings covered by the two surveys.
- The national annual (2017) prices for the capital goods covered by surveys 07 and 08 that were collected in Q2 2017. The prices are without VAT. They have been adjusted by the global rate for non-deductible VAT actually paid on capital goods in 2017 that was reported in 2018 (survey 16).
- The national annual (2017) prices for compensation of government employees producing hospital services and collective services from survey 09 that were reported in 2018.
- Either the national annual (2017) prices for rents from survey 11A or, if the rent market is small or unrepresentative, data on housing stock from survey 11B that were reported in 2018.
- Data on student numbers by education level (survey 12) for 2017 extracted from the joint EU-OECD-UNESCO education data base.
- The GDP expenditure weights (survey 13) for 2017 that were reported in Q3 2018 for the preliminary calculation, in Q3 2019 for the intermediate calculation and in Q3 2020 for the final calculation.
- The global rate for tips (survey 17) for 2017 reported in 2019. This has been used to adjust prices paid in restaurants and cafés (survey 04) and to hairdressers (survey 02), which were reported without tips.
- Average annual exchange rates (survey 18) for 2017 compiled by the European Central Bank and the International Monetary Fund.
- Average annual resident population (survey 19) for 2017 extracted from EU and OECD population data bases.

The PPPs and real expenditures for 2018, 2019 and 2020 will be similarly calculated except that, in 2018 and 2020, the basic heading PPPs for machinery and equipment will be estimated by extrapolation and retropolation using the basic heading PPPs for 2017 and 2019 for 2018 and the basic heading PPPs for 2019 and 2021 for 2020.

**Table B: Input data for OECD comparisons for reference years 2017 and 2020**

Data	Survey	Reference year			
		2017	2018	2019	2020
Prices	01. Food, drinks and tobacco	2018-1			2021-1
	02. Personal appearance	2018-2			2021-2
	03. House and garden	2016-1			2019-1
	04. Transport, restaurants and hotels	2016-2			2019-2
	05. Services	2017-1			2020-1
	06. Furniture and health	2017-2			2020-2
	07. Machinery and equipment	2017			2020
	08. Construction projects	2017			2020
	09. Compensation of government employees	2017			2020
	10. Hospital services	2017			2020
	11A. Housing	2017			2020
Quantity and quality indicators	11B. Housing	2017			2020
	12. Education	2017			2020
Expenditures	13. GDP expenditure weights	2017			2020
Other	14 Spatial adjustment coefficients				
	15. Temporal adjustment coefficients	2016, 2017, 2018			2019, 2020, 2021
	16. Global rate for VAT paid on capital goods				
	17. Global rate for tips to waiters, etc.				
	18. Annual average exchange rates	2017			2020
	19. Annual average resident population	2017			2020

**Notes on Table B**

The PPPs and real expenditures for 2017 will be calculated with:

- The national prices for the consumer products covered by surveys 01 and 02 that were collected respectively in the first and second halves of 2018. The national prices have been converted to annual prices with the temporal adjustment coefficients for 2018. The annual prices have been used to calculate PPPs for 2018 for the basic headings covered by the two surveys. These basic heading PPPs for 2018 have been taken back to 2017 with the temporal adjustment coefficients for 2017.
- The national prices for the consumer products covered by surveys 03 and 04 that were collected respectively in the first and second halves of 2016. The national prices have been converted to annual prices with the temporal adjustment coefficients for 2016. The annual prices have been used to calculate PPPs for 2016 for the basic headings covered by the two surveys. These basic heading PPPs for 2016 have been advanced to 2017 using the temporal adjustment coefficients for 2017.
- The national prices for the consumer products covered by surveys 05 and 06 that were collected respectively in the first and second halves of 2017. The national prices have been converted to annual prices using the temporal adjustment coefficients for 2017. The annual prices have been used to calculate PPPs for 2017 for the basic headings covered by the two surveys.
- The national annual (2017) prices for the capital goods covered by surveys 07 and 08 that were collected in Q2 2017. The prices include non-deductible VAT.



- The national annual (2017) prices for compensation of government employees producing hospital services and collective services from survey 09.
- Either the national annual (2017) prices for rents from survey 11A or, if the rent market is small or unrepresentative, data on housing stock from survey 11B that were reported in 2018.
- Data on student numbers by education level (survey 12) for 2017 extracted from the joint EU-OECD-UNESCO education data base.
- The GDP expenditure weights (survey 13) for 2017 that were reported in Q3 2018 for the preliminary calculation, in Q3 2019 for the intermediate calculation and in Q3 2020 for the final calculation.
- Average annual exchange rates (survey 18) for 2017 compiled by the European Central Bank and the International Monetary Fund.
- Average annual resident population (survey 19) for 2017 extracted from EU and OECD population data bases.