

‘Rolling review of the Purchasing Power Parities (PPPs)’

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1 Executive Summary

1.1 Introduction

In 2007 Eurostat set up a Quality Assurance Framework related to streamlining the existing quality activities in Eurostat and to positioning them in the wider framework of the European Statistics Code of Practice and Total Quality Management. Within this framework several initiatives have been developed to document and measure quality but also to assess the quality of statistical production processes and outputs.

Quality assessment fulfils two main goals. The first goal is to identify the strengths of statistical processes, which eventually leads to a better dissemination of good practices in the organisation. The second goal is to detect weak points in the production processes, which allows the implementation of improvement actions. By considering systematically every aspect of the production process, quality assessments provide guidance for prioritisation of improvement measures.

Rolling reviews are one of the tools for carrying out a complex assessment in a wider sense involving not only the assessment of the statistical data produced but also the process to produce them, the working structures, i.e. the interactions with data providers and with users of the data, and the data quality. Rolling reviews lead to the definition of improvement actions for a better performance of the European Statistical System in a specific statistical domain.

A rolling review is therefore a formative evaluation that assesses how the process of collecting, processing and disseminating statistical data in a specific statistical area can be made more efficient (cost/benefit) and effective. It represents the layer of evaluation in the overall Quality Assurance Framework and as such also corresponds to the requirements of the Commissions' Internal Control Standards to undertake evaluations of major activities on a regular basis. The methodology of the currently implemented Rolling Reviews implies a thorough review of partners' satisfaction, users' satisfaction, the internal organization of the production unit, and the resources used by Eurostat and by Member States in order to identify strengths and weaknesses in Eurostat's performance. The results of these assessments are hence used to formulate recommendations for improvements and identify ways for implementing these improvements.

Eurostat conducted a rolling review of Purchasing Power Parities (PPPs), in order to evaluate the quality of the outputs and the processes in this area. The rolling review was carried out between May 2010 and November 2010 collecting information through three instruments: a user satisfaction survey, a partner satisfaction survey and the completion of a self-assessment checklist by the professional staff within Eurostat, assessing all major steps within the data production cycle.

1.2 Purchasing Power Parities (PPPs)

PPPs are indicators of price level differences across countries. They tell us how many units of a (real or artificial) common currency a given quantity of a given basket of goods and services costs in different countries. They are expressed as indices with basis a (real or artificial) chosen country or country group. PPPs thus serve as spatial price level indicators that are primarily suitable for comparisons referring to several geographical locations at a given point in time. PPPs in a sense are currency conversion rates that convert economic indicators expressed in national currencies to the common currency, called Purchasing Power Standard (PPS) in the case of European PPPs.

PPPs divided with exchange rates (both relative to the same reference currency) give Price Level Indices (PLIs) which show the price level differences between countries.

The Eurostat-OECD PPP Programme that has been established for the production of PPPs is a multilateral exercise involving the National Statistical Institutes (NSIs) of the participating countries, Eurostat and the OECD. The Eurostat PPP Programme (ECP¹), which is part of the broader Eurostat-OECD programme, covers the 27 EU Member States and the 4 candidate countries (Croatia, the Former Yugoslav Republic of Macedonia, Iceland and Turkey), 2 EFTA Member States (Norway and Switzerland) and 4 Western Balkan countries (Albania, Bosnia-Herzegovina, Montenegro and Serbia). The OECD coordinates the PPP work in the non-European OECD Member States.

The production of PPPs requires price data on a large number of goods and services, which are for the greatest part collected by NSIs and submitted to Eurostat. In addition it requires expenditure weights, the shares of final expenditure that are allocated to each particular item group, which are also compiled by the NSIs and delivered to Eurostat.

PPPs are calculated for each of the participant countries, for the EU as a whole, and for the euro area. The common rules for the provision of basic information (input data), the calculation and dissemination of PPPs are laid down in Regulation (EC) No 1445/2007 of the European Parliament and of the Council of 11 December 2007 (the PPP regulation). The PPPs as calculated by Eurostat enter the calculation of PPPs for the OECD Member States and countries affiliated with the OECD, as well as the calculation of global PPPs undertaken by the World Bank and the International Monetary Fund (IMF).

1.3 Summary of results

European PPPs are a statistical product of high relevance for users. They serve needs of producers of statistics in Eurostat and needs of policy makers and researchers in international and national authorities and universities. Their quality is rated highly by users and by the national authorities that produce them (Eurostat's ECP partners).

¹ ECP stands for European Comparison Programme, which is used in this document as shorthand for the Eurostat PPP Programme.

The production of European PPPs is based on the PPP Regulation and this ensures a high level of harmonisation of PPP data. In addition, the data collection is based on a strong methodological basis and has adopted well established European and international definitions and nomenclatures. The work in the ECP is efficiently organized, coordinated and guided by Eurostat and the OECD. There is very low response burden for individuals or business enterprises. The use of common software tools for item list management, data entry and validation and of data transmission standards greatly facilitates the work of Eurostat and its partners.

1.3.1 User survey

The responses from 24 users² of PPPs have been analyzed and reveal the very positive perception that users have about the overall quality of PPPs.

The main strength of European PPPs according to users is their high relevance. Statistical production and research are the main purposes for which PPPs are used. All types of PPP data and indicators are used, but the PPPs themselves and the PLIs are most frequently mentioned. Moreover, PPP statistics for analytical categories (i.e. specific components of GDP) are used even more than statistics that refer to the total economy (i.e. total GDP). However, a number of users consider that the disseminated PPP statistics are not detailed enough and ask for more detailed item groups and even for prices of individual items.

Users rate highly the quality of PPP statistics according to all quality dimensions. Their rating is highest for accuracy and comparability across countries, which are also the most important dimensions for users. Even comparability over time, which is reduced due to the focus of PPPs on geographical comparisons, scored well. Users seem to understand the trade off between spatial and temporal comparability for PPPs. However, they perceive comparability over time among the most important aspects of quality for them. Users are also satisfied with the quality of the detailed PPP statistics made available for research purposes.

Most users obtain the PPP statistics from Eurostat's free online dissemination database by creating custom-made extractions. Besides Eurostat's database, users consult other sources, like OECD and the World Bank, mainly due to the coverage of additional countries, the accessibility and the user friendliness of the dissemination systems.

Some users exhibit imperfect understanding of what PPPs are and how they should and should not be used. This is aggravated by the fact that metadata in Eurostat's dissemination database are not very visible or do not cover issues of interest to advanced users, e.g. how to compute other indicators with the help of PPP statistics. On the other hand the Eurostat-OECD methodological manual on PPPs is very producer-oriented.

Overall, users are very satisfied with Eurostat's support towards them. Its response to requests for data, clarifications and assistance in their use has been rated very positively. They believe that Eurostat staff reacts quickly and effectively.

² The overall low response rate implies that the results of the user survey must be interpreted with care.

1.3.2 Partner survey

The 37 NSIs that participate in the ECP provided their opinion about a number of topics: the organization and functioning of the ECP, the surveys and other statistical production activities that they regularly have to carry out, the quality of the PPP statistics that Eurostat publishes, etc.

Partners are overall satisfied with the planning and coordinating structures of the ECP implemented through its various Working Group (PPP WG, NA-PPP WG, PPP-CG WG) and Task Force meetings. Lowest satisfaction scores are given to the Joint National Accounts - PPP Working Group, perhaps due to the fact mentioned by partners, that National Accounts (NA) departments of the NSIs are not getting involved in common NA-PPP work as much as the PPP departments do.

Partners are also satisfied with the functioning of the ECP, especially in what regards the coordination of activities to define goals, set priorities, report progress of projects, etc. They consider that during the last three years the ECP has been improved considerably and that, moreover, it had a positive impact on national data production practices.

With regard to data production, the partners have a very positive opinion about Eurostat. The large majority are satisfied with the organization of all the surveys of the ECP. They appreciate the guidance offered by Eurostat and its contractors on methodological issues and the efficacy of the online software tools developed by Eurostat for item list management, data entry and validation. However, partners identify a need for improvement in the sharing of knowledge and best practices, where Eurostat has already taken some steps (country inventories, PPP Workshops).

Spatial adjustment factors (SAFs) and education PPPs are the two areas with which partners are least satisfied and where they feel that more guidance is needed. In particular, partners have expressed the need for improved and harmonised methodology of computing SAFs and suggest that use should be made, to the extent possible, of the existing data (e.g. from Consumer Price Indices) for this purpose. Moreover, partners do not fully understand the benefits of the output approach for the production of education PPPs or their exact role in its implementation.

Concerns have also been raised about what is perceived as unnecessarily long time devoted to data validation of consumer goods, equipment goods and construction project prices, the not very clear definitions of the bills of quantities used in the construction survey, the timing of some surveys and outdated items in the consumer goods and equipment goods lists.

Partners have a very positive appreciation of the quality of PPPs published by Eurostat. All quality dimensions have received high ratings with the exception of comparability over time and coherence of PPPs with the Harmonized Index of Consumer Prices (HICP). The exceptions are quite reasonable since partners recognise that PPPs were developed for spatial rather than temporal comparisons and since comparison with HICP is not

plausible due to methodological differences and different composition of the two indices' baskets.

1.3.3 Statistical Processes Assessment Checklist

Eurostat has established a systematic process to treat users' requests, mainly those related to the provision of detailed data. Consultation with users is mainly achieved through regular meetings inside and outside Eurostat or through informal contacts. However, Eurostat considers that key users of PPP data and in particular users in the European Commission are only partly identified.

Eurostat believes that the information on users' satisfaction is limited and that there is need for more systematic monitoring. Eurostat's perception of users' satisfaction on the quality of PPPs is in good agreement with the assessment provided in the user survey, where comparability across countries and relevance are the most highly rated. A work plan to treat unmet needs is already under development, mainly with regard to the improvement of the temporal consistency of PPPs and the production of more detailed indicators.

Eurostat monitors the compliance of data providers with the PPP Regulation and notes that a systematic process for monitoring is under development. No problems with data delivery are reported. NSIs use common, advanced IT and statistical transmission standards. Eurostat regards that the data comply with the requirements set in the Regulation. Problems are discussed in regular meetings organised with data providers.

The degree of completeness of the data collected by countries is very high. Eurostat perceives that the availability of a common manual and guidelines for data collection and production contributes to the overall comparability. Moreover, the establishment of common tools for data entry and data validation has a positive impact on the quality of PPP data. Eurostat has developed rigorous and coordinated data editing procedures that are transparent to the NSIs. However, it considers that the time allowed for preparation of the data at national level is sometimes not sufficient for validation before submission.

Eurostat considers that the impact of sampling errors on accuracy is medium, mainly as a result of the high level of aggregation in which PPP data are produced. Seasonal adjustment at Eurostat level is regarded as satisfactory. Eurostat believes that there is room for improvement in the calculation of spatial adjustment factors (SAFs). Revisions are usually made on the weights rather than on the prices or PPP data as such. Revisions are not permitted later than three years from the reference year but are believed to have low impact on the PPP aggregates. However, Eurostat identifies room for improvement in this area. Overall, Eurostat believes that the accuracy of PPP statistics depends on the level of aggregation and considers it as good.

The production of the PPP statistics is documented in various formats providing methodological as well as data quality information of good quality. Eurostat believes that some improvements are still needed on the documentation of data dissemination and of the methodology and software used for the production of PPP statistics.

Eurostat uses various dissemination channels for data and metadata and provides good support to users regarding the use and interpretation of data. The ESMS reference metadata for PPP statistics are considered by Eurostat to be of good quality although it has the impression that users find them too technical.

Internal documentation about the quality of PPP statistics is available. However, some parts of it are outdated or incomplete and Eurostat is working to improve this. The development of country inventories is underway and Eurostat expects that access to information about the national practices of PPP data production could shed light to national particularities and their impact on the quality of PPP data. Moreover, the PPP manual is under revision.

More detailed PPP data are made available to users upon request and for research purposes only. However, the precautions with regard to confidentiality could be considered as a drawback with negative impact on the accessibility and usability of the data.

Eurostat follows a standard procedure for authorizing data for dissemination. Timeliness of both the preliminary publication (T+6 months) and the publication of the first complete data set of PPP results (T+12 months) are regarded as good. According to Eurostat any further improvement of the timeliness of PPP statistics would require major internal changes as well as some changes involving external partners.

The coherence of PPP statistics with NAs is considered to be good, although coherence with the temporal aspects of NAs (growth rates and deflators) is less good. The same is true for coherence with HICP data.

Comparability across countries is one of the very strong features of PPP statistics. The methodology for the collection of input data for the calculation of PPPs is well established and harmonised. On the contrary, comparability over time is less satisfactory. By design PPP statistics are spatial indicators and Eurostat constantly advises users not to over-interpret time series.

Eurostat identifies as main areas in need for improvement the dialog with users of PPP data, the comparability over time and the documentation of national and internal practices.

The IT system currently used for the production of PPP statistics is specifically developed according to the needs of the PPP programme and is considered to be sufficiently reliable. A positive aspect of it is its use by both Eurostat and the NSIs. However, it is still in development and improvements still need to be made mainly in what regards the server performance and usability. There is also need for more flexibility to allow Eurostat staff to experiment with different methodologies for the calculation of PPPs within the system and for a contingency plan in case the IT applications do not work.

Eurostat believes that the PPP production team is well organized and that the qualifications of its staff are highly relevant for the requirements of the statistical process.

Coordination with other units in Eurostat is also considered to be good. The tasks that are usually outsourced are related to assistance to the validation of input data and market research. Eurostat believes that the current staff is sufficient for the production of the basic statistics but that new legal requirements or policy initiatives would demand additional resources. In addition, the production process within Eurostat relies a lot on seconded national experts, whose recruitment has lately become more difficult.

1.4 Recommendations for Improvement

Although no major weaknesses are identified in the PPP production process there is room for improvement of particular aspects. These areas are described here and reference is made to the list of relevant recommendations, which follows in Table 1.

Eurostat's partners consider that more information can and should be shared among them about the national practices used for the production of PPPs. Such exchange of information would help to identify and promote best practices. This need is also recognised by Eurostat, which can exploit the country inventories currently under development and disseminate information to all partners (Recommendation A 1).

One particular aspect of the production process where both partners and Eurostat feel that more guidance is needed is the computation of spatial adjustment factors (SAFs). Partners believe that without such guidance each country is left to use its own methods, which results in comparability issues and, possibly, use of less than optimal methods. Therefore, Eurostat should promote the search for common methodology, using preferably existing data (e.g. from CPI) (Recommendation A 2).

One of the strong aspects of PPP production is the rigorous validation of the input data, which is carried out in a cooperative manner by national authorities, group leaders and Eurostat. However, several partners believe that the time allocated to data validation is unnecessarily long. In recent years, the validation period for various surveys has already been reduced. Eurostat and partners should examine whether there is a need and a possibility to reduce it without harm for the quality of PPPs (Recommendation A 3).

The Eurostat – OECD methodological manual on purchasing power parities is greatly appreciated by partners. However, several changes have taken place in PPP production since its release in 2006 and therefore an update is needed (Recommendation A 4).

The internal documentation of Eurostat about PPP production also needs similar updating. Moreover, Eurostat considers that some aspects of the production process need more coverage. The documentation is useful for acquainting new members of the PPP team with the procedures and for ensuring harmonization of their application. Therefore the update is important (Recommendation A 5).

The PPP regulation is the legal basis for the production of PPPs. All partners comply with it and more than cover the requirements for data provision. The Regulation also specifies

minimum standards for the quality of the data. However Eurostat perceives a risk in that these minimum standards are sufficient for computation of PPPs but not for ensuring their quality. This should be one of the discussion points in a future revision of the legal act. At the same time, this revision could also remove the limitation of not allowing revisions of PPP data that are more than 3 years old (Recommendation A 6).

At survey level, the construction survey is seen by partners as one of the more difficult surveys. It is proposed to further strengthen this survey by improving the item descriptions (Recommendation A 7).

The comments provided in the user survey made very clear the importance of PPPs for the work of users. Quite often however, users expressed needs for PPPs for a more detailed breakdown of final expenditure and even for data on the prices of individual goods. Such detailed statistics and data are deemed very relevant for research purposes, which are one of the main reasons for using PPPs. Eurostat and partners are encouraged to try to disseminate more detailed data (Recommendation B 1), with due account of the confidentiality of individual price material.

Some users showed in their responses to the user survey that they do not grasp fully the meaning of PPPs and the purposes they serve. It is a concern of Eurostat as well that users may try to use PPPs for purposes for which they are not fit. This may lead them to wrong results or to believing that the quality of PPPs is low. Eurostat provides information about the proper uses of PPPs in the ESMS metadata and in the section of its website dedicated to PPPs. However, it considers, and some user comments verified this, that the information is too technical. In addition it was found out that a number of users are not even aware of the ESMS metadata. Therefore, Eurostat must try to explain in a more clear way what PPPs are and how they can be used and must also ensure that the metadata are visible to as many users as possible (Recommendation B 2).

Another issue which emerged is that the ESMS quality indicators are too generic to fit the specificities of PPPs. Therefore, Eurostat should seek ways to make them adaptable to the specificities of statistical domains, which would benefit all disseminated statistics and not only PPPs (Recommendation B 3).

PPPs are designed so as to enable meaningful comparisons between countries and temporal comparability is reduced as a result of this. Users and partners understand this. However temporal comparability is also very important for users. Eurostat has realized the need for improved temporal comparability and relevant work is under way (Recommendation C 1).

The European Commission's vision for EU statistics in the next decade³ places great emphasis on the rational use of data sources and their common exploitation for the production of several statistical products. PPPs and the HICP rely on prices of consumer goods as input data but currently the relevant price collections are carried out

³ European Commission (2009). Communication from the Commission to the European Parliament and the Council on the production method of EU statistics: a vision for the next decade.

independently. This results in reduced coherence between PPPs and HICP. Although PPPs and HICP serve different purposes Eurostat and the ECP partners recognize the need for more coordination between their consumer goods surveys. They should seek ways to gradually improve coordination and exploit or create synergies between the surveys (Recommendation C 2).

The PPP team in Eurostat has informal contacts with key users. Therefore its knowledge about their needs is not equally good for all of them. The team does not even know fully which other production units in Eurostat use PPPs to convert their statistics in PPS. Eurostat should therefore seek to establish a procedure for regular contact between the PPP team and other production units (Recommendation D 1).

In recent years Eurostat introduced a set of common software tools for the production of PPPs, which are used by partners and Eurostat. They are intended to form an integrated system, custom-built for the needs of PPP production. Partners and Eurostat have received them very well and consider that they have made easier and improved their work. However, their development has not been completed, while there are still bugs and issues where partners need improvements. Therefore the development of the IT system should continue (Recommendation E 1).

Finally, Eurostat considers that its PPP team is very competent and adequate for the needs of the production process. However, it considers that the resources are stretched when it comes to cover additional, emerging needs (assessment of inventories, development of methodology for spatial adjustment factors, new political needs, etc). Therefore it should assess its resource needs in the light of possible new demands (Recommendation E 2).

Table 1. Recommendations for improvements of the production process of European PPPs.

ID	Direction of improvement /Recommendation	Priority	Source	Owner	Timing
A. Data production					
A 1	Increase the sharing of knowledge between ECP partners: Eurostat must promote the wider sharing of information about national practices between ECP partners, which will enable the identification of best practice among them. The country inventories can be exploited as an information source. Working group meetings and workshops are suitable venues for information sharing and discussion.	High	PS, CL	G6	ST
A 2	Improve and harmonize the methods for the computation of spatial adjustment factors: Eurostat must coordinate work in the ECP to develop common methodology for computing spatial adjustment factors (SAFs). The exchange of information on national practices would be a first step in this direction. Use of	High	PS, CL	G6	LT

ID	Direction of improvement /Recommendation	Priority	Source	Owner	Timing
	existing data (e.g. from CPI) for this purpose should be explored.				
A 3	Reconsider the planning of the data validation phase: Eurostat should examine whether it is necessary and possible to further reduce the length of the data validation phase for consumer good, equipment good and construction project prices without compromising the quality of the data.	Medium	PS	G6	MT
A 4	Update the Eurostat – OECD methodological manual on purchasing power parities: Eurostat should update the PPP manual, in coordination with the OECD and ECP partners, and bring it in line with the current methods and practices.	High	CL	G6	MT
A 5	Update regularly the internal documentation about PPP production: Eurostat should bring the internal documentation about the production process up to date with the current methods and practices, fill existing gaps and acquaint the members of the PPP section with it.	High	CL	G6	MT
A 6	Consider a revision of the PPP regulation: Eurostat should consider a revision of the PPP regulation. Two areas where the regulation should be revised are: a) raising the minimum quality standards regarding data that must be delivered to Eurostat, b) allowing revisions of data that are more than 3 years old.	Medium	CL	G6	LT
A 7	Improve definitions of bills of quantities in construction survey: to improve the comparability of the prices collected in the construction survey, the item descriptions used in the bills of quantities should be made more precise.	Medium	PS	G6	MT
B. Improving data and metadata dissemination					
B 1	Disseminate PPPs at more detailed breakdown and non-confidential price data: Eurostat should consider disseminating PPPs for a more detailed breakdown of final expenditure, down to the level of basic headings. Appropriate notes about the accuracy of the statistics should also be provided.	Medium	US	G6	LT

ID	Direction of improvement /Recommendation	Priority	Source	Owner	Timing
	<p>Moreover, Eurostat and ECP partners must consider the issue of publishing, or providing upon request for specific uses only, average prices for goods categories where no confidentiality protection concerns apply.</p> <p>Work on this is already ongoing within the context of the strategy on Multi-Purpose Consumer Price Statistics.</p>				
B 2	<p>Improve the visibility and content of ESMS metadata: Eurostat should increase the visibility of the ESMS metadata about PPP statistics, especially for “indirect” users, who use European statistics of other domains expressed in PPS. This could be achieved, for example, by linking to these metadata from the other domains’ ESMS metadata.</p> <p>Moreover, the metadata should explain more clearly to general users the concept of PPPs, their appropriate uses and their limitations.</p>	Medium	US, CL	G6, B6	MT
B 3	<p>Adapt ESMS quality indicators to the specificities of PPPs: Eurostat should try to make the ESMS quality indicators adaptable to the specificities of statistical domains, and therefore of PPPs as well.</p>	Low	CL	B1, B6	LT
C. Improving data quality					
C 1	<p>Improve the temporal comparability of PPPs: Eurostat and the ECP partners should try to improve the temporal stability of methodologies and item lists used in the production of PPPs.</p>	High	US, PS, CL	G6	LT
C 2	<p>Increase the coordination of the data collections for PPPs and HICP: Eurostat and the ECP partners should try to gradually increase the coordination and create synergies between the data collections carried out for the production of PPPs and HICP.</p>	High	PS, CL	G6	LT
D Greater engagement with users					
D 1	<p>Regularize communication with PPP users in Eurostat: Eurostat must establish regular communication between its PPP team and production units that use PPPs, for the provision of support to and</p>	High	CL	ESTAT	MT

ID	Direction of improvement /Recommendation	Priority	Source	Owner	Timing
	reception of feedback from the latter.				
E Other matters					
E 1	Continue the development of the integrated IT system: Eurostat should continue the work for the development of the IT system comprising the Item List Management, Data Entry and Validation tools. The work must address the implementation of additional functionality and the resolution of bugs and other issues identified by the users of the tools. Specific tools for data collectors are desired by partners.	High	PS, CL	G6	MT
E 2	Assess resource needs for PPP data production: Eurostat should assess the number and type of staff that will be needed, in relation to upcoming important policy needs.	High	CL	ESTAT	ST

Priority: “High” is highest priority, “Low” is lowest priority

Source: CL (checklist); US (User survey); PS (Partner survey);

Owner: unit B1 Quality; Classifications, unit B6 Reference databases and metadata, unit G6 Price statistics; Purchasing power parities

Timing: short term ST (within the next 6 months), medium term MT (within the next 2 years), long term LT (needs more than 2 years for implementation)