

Practical guidelines for revising ESA 2010 data

2019 edition



MANUALS AND
GUIDELINES

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Foreword

It has been nearly 20 years since, we, as a European Statistical System (ESS), started discussions on the need to arrive at a harmonised approach to revising national accounts data and along the way we have achieved a number of important milestones. With the publication of this handbook, it is my firm belief that we have reached another milestone towards the full implementation of a harmonised European revision policy. The handbook not only brings together recommendations on data revisions that were developed through different fora at different times, but is also the first effort to translate these consolidated recommendations into concrete practices to ensure accurate, reliable, consistent and comparable data in the context of the European System of Accounts (ESA) 2010.

This handbook will find use as a practical tool at the disposal of the compilers of ESA 2010-based national and regional accounts and will also be appreciated as a pedagogical manual for new colleagues joining the professional world of national accounts. I am convinced that it will contribute to establish a more transparent and efficient practice for revising national accounts data at EU and national levels and, consequently, to enhance the quality of the produced European statistics.

New user needs will emerge and our revision practices will, in course, need to be adapted to address the competing objectives of timeliness versus accuracy. As illustrated by this handbook, the transparency and efficiency of the revision policies and practices and their appropriate communication are the cornerstones to ensure that the most reliable updated data for key indicators can be provided to policy-makers, while data revised less frequently can best serve the purposes of analytical users.

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Director
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Eurostat is also grateful to the Committee on Monetary, Financial and Balance of Payments Statistic (CMFB) for its work on data revisions. In particular, the CMFB recommendations on the harmonised European revision policy and the communication of major revisions are the foundation of the good practices presented in this handbook.

Table of contents

Foreword	3
Acknowledgements	4
1. Introduction	7
2. Background information	8
3. Legal requirements	11
3.1. European statistical law	11
3.2. Code of Practice	11
3.3. ESA 2010 transmission programme.....	12
4. Data revision and consistency of the accounts	14
4.1. Internal consistency of national accounts	14
4.2. Consistency with national accounts data used for administrative purposes.....	17
4.3. Consistency with other domains and satellite accounts	18
5. Benchmark revisions	19
5.1. Scope	19
5.2. Definition.....	20
5.3. Recommendations	21
5.4. Practical guidelines	25
6. Routine revisions	28
6.1. Scope	28
6.2. Definition.....	29
6.3. Recommendations	29
6.4. Practical guidelines	33
7. Specific provisions for other ESA 2010 domains	38
7.1. Detailed breakdowns and asset tables for national accounts main aggregates	38
7.2. Regional accounts	39
7.3. Supply and use tables and input-output tables	40
7.4. Supplementary table on pension entitlements in social insurance	41
7.5. Temporal disaggregation	42
7.6. Seasonal adjustment	42
8. Metadata and communication on revisions.....	44
8.1. Metadata on revisions	44
8.2. Communication of revisions.....	46
9. National revision policies and practices.....	49
9.1. General considerations concerning national revision policies	49
9.2. Planning of revisions.....	52

9.3.	Implementation of revisions	56
9.4.	Analysis and dissemination of results.....	61
9.5.	Consistency of the accounts	62
10.	Eurostat’s revision policy and practices.....	64
10.1.	General principles	64
10.2.	Principles related to the data production process	65
11.	Quality assessment of revision policy and practice	67
11.1.	Overview of the quality reporting and assessment of ESA 2010 data	67
11.2.	Quality assessment of the revision policy	69
11.3.	Quality assessment of the revision practice.....	69
Annexes	73
A.1.	ESA 2010 transmission programme tables	73
A2.	List of figures.....	75
A3.	List of tables	76
A4.	List of acronyms.....	77

1

Introduction

Revisions are an essential part of a good quarterly and annual national accounts compilation practice, as they enable statisticians to provide users with data that are as timely and accurate as possible. The topic of harmonising revision policies has therefore been on the agenda for many years.

The first discussion in the National Accounts Working Group (the NAWG, then the Working Party on National Accounts) dates back to 2001. Harmonised recommendations have been developed in the European Union (EU) for more than ten years, to guide compilers of national accounts and balance of payments (BOP) statistics. A harmonised European revision policy (HERP) was put in place to ensure coordinated and consistent revisions between the statistical domains within each country and across the EU. This policy is being developed as user needs, legal requirements, methodological manuals and compilation methods change. After the most recent change of international methodological guidelines, which led to the implementation of the European System of Accounts 2010 (ESA 2010) in September 2014, some of the harmonised recommendations on data revisions have been updated.

Given this background, this handbook has been prepared as a practical tool for compilers of national accounts based on ESA 2010. Its objective is to translate the voluntary recommendations on data revisions into specific practices that ensure that national accounts are accurate, reliable, consistent and comparable.

Chapter 2 of the handbook provides background information, including how discussions on data revisions evolved over time. Chapter 3 presents the requirements for revisions that stem from legal acts. Chapter 4 discusses consistency aspects related to national accounts, important when planning and carrying out revisions.

Chapter 5 gives recommendations on how to conduct benchmark revisions (or major regular revisions) of ESA 2010 data, while Chapter 6 focuses on recommendations for routine revisions. Chapter 7 provides recommendations for national accounts domains that fall outside the scope of HERP. It also presents some technical aspects of data revisions when temporal disaggregation and seasonal adjustment techniques are applied.

Chapter 8 discusses metadata and communication of benchmark, routine and non-scheduled revisions. Chapter 9 provides good practices for the application of HERP at national level. Chapter 10 presents Eurostat's revision policy and practices for ESA 2010 data.

Lastly, Chapter 11 discusses how national revision policies and practices are being assessed in the context of ESA 2010 quality reporting and assessment.

2

Background information

Revisions are an essential part of a good quarterly and annual national accounts compilation practice, as they provide users with data that are as timely and accurate as possible. The topic of harmonising revision policies has been on the agenda for many years. It was first discussed in the National Accounts Working Group (NAWG, then the Working Party on National Accounts) back in 2001. Table 2.1 shows a synopsis of the milestones towards establishing a harmonised European revisions policy (HERP).

The Committee on Monetary, Financial and Balance of Payments Statistics (CMFB) issued guidelines ⁽¹⁾ on how to communicate major statistical revisions in the EU. These were adopted by the Statistical Programme Committee (SPC) ⁽²⁾ in May 2007 and endorsed by the Economic and Financial Affairs Council (ECOFIN) in November 2007.

In addition, within the European statistical system (ESS), the European Statistical System Committee (ESSC) endorsed guidelines on the revision policy for the principal European economic indicators (PEEIs) ⁽³⁾ in February 2012. The ESS guidelines follow the relevant standards defined in the European Statistics Code of Practice ⁽⁴⁾.

In parallel, a CMFB Task Force on Harmonised European Revision Policy (CMFB TF HERP) ⁽⁵⁾ was working on (quarterly and annual) routine revisions and major revisions. In July 2012, the CMFB agreed on the HERP for national accounts and BOP/international investment positions (IIP) ⁽⁶⁾ statistics. Implementation of this policy was to start by September 2014, which also marked the start of ESA 2010 data transmissions for national accounts and publication of the sixth edition of the Balance of Payments and International Investment Position Manual (BPM6) for BOP/IIP.

In 2015, after the new methodological manuals were introduced, the CMFB conducted a survey to assess the extent to which Member States had implemented the HERP. The results showed that 27 % of countries had implemented the policy, 46 % partly implemented the policy and 27 % did not implement it at all.

This led to the CMFB decision to set up a Task Force on Harmonised European Revision Policy (CMFB TF HERP) at its July 2015 meeting. The task force was to look at the policy's constraints for

⁽¹⁾ [CMFB Guidelines on communication of major statistical revisions in the European Union](#)

⁽²⁾ After Regulation (EC) No 223/2009 of the European Parliament and of the Council on European Statistics came into force on 1 April 2009, the Statistical Programme Committee was replaced by the European Statistical System Committee.

⁽³⁾ [KS-RA-13-016-EN-N, ESS guidelines on revision policy for PEEIs](#)

⁽⁴⁾ [KS-02-18-142, European Statistics Code of Practice — revised edition 2017](#)

⁽⁵⁾ <http://www.cmfb.org/main-topics/revision-policy>

⁽⁶⁾ [European revision policy for balance of payments/international investment position and national accounts statistics](#)

Table 2.1: Milestones towards establishing a harmonised European revision policy for national accounts and BOP

Year	Milestone	Output
2007	CMFB guidelines on the communication of major statistical revisions	guidelines
2012	ESS guidelines on the revision policy for PEEIs	guidelines
2012	2012 CMFB TF HERP	guidelines
2016	2016 DMES TF BRP	report
2017	2017 CMFB TF HERP	report
2017	CMFB communication note on revisions	communication note
2017	DMES TF on ESA 2010 data validation	handbook
2017	ESA 2010 quality reporting and assessment	quality reports

routine revisions, explore if there was a clear need for an update and, if appropriate, present an updated policy for routine revisions for discussion and eventual adoption. The final report of the task force, with proposals to amend HERP, was discussed at the CMFB plenary meeting in February 2017. Furthermore, the task force took stock of the revision practices followed at the time, as well as of countries' plans to implement the amended HERP, in order to make a detailed assessment of the situation. The results of this study were presented at the CMFB plenary meeting in June 2017.

In addition, during 2016, a task force set up by Eurostat's directors of macro-economic statistics (DMES) worked on the issue of harmonising benchmark revisions. The main goal of this DMES Task Force on Benchmark Revision Policy (TF BRP) was to prepare a specific proposal for the next harmonised benchmark revision of national accounts, BOP and related areas. The TF BRP was also asked to give guidance if there was a national need for benchmark revisions outside the harmonised approach. Furthermore, it was expected to address the issue of consistency between non-financial accounts and financial accounts, between quarterly and annual data, and between rest of the world accounts and BOP/IIP. It would also discuss the issue of consistency with national accounts data provided to Eurostat as part of the ESA transmission programme and national accounts data used for administrative purposes (for example the excessive deficit procedure (EDP) and the EU's own resources) in the context of benchmark revisions. Finally, the TF BRP was asked to discuss the communication and public dissemination of information on benchmark revisions.

Both task forces concluded their work around the end of 2016. Based on their proposals, the DMES and the CMFB adopted the updated recommendations in December 2016 and June 2017, respectively. These were addressed to compilers of national accounts and BOP. On 13 October 2017, the CMFB published a communication note explaining the key elements of data revisions ⁽⁷⁾.

Furthermore, other ESS technical cooperation activities in the area of national accounts, namely on ESA 2010 data validation, quality and metadata, touched upon aspects of data revisions.

Following a decision of the DMES meeting in December 2014, the DMES Task Force on ESA 2010 Data Validation had been reviewing the current validation rules, including on the treatment of revisions in the validation process. The task force also had a mandate to review the role of validation-relevant metadata in the validation process and put forward a recommendation to provide metadata on revisions covering selected tables. This would inform data compilers involved in the validation process that the revised values are acceptable and inform users that the data values are not an error in the statistical production process, as they have a plausible interpretation. The main result of this work is the [ESA 2010 Handbook on Data Validation](#) ⁽⁸⁾.

Finally, the NAWG also worked on introducing the ESS quality and metadata statistical concepts defined in the single integrated metadata structure (SIMS) ⁽⁹⁾. Starting in 2015, under a mandate

⁽⁷⁾ [CMFB communication on common revision policies](#)

⁽⁸⁾ Access is restricted to ESA 2010 data compilers.

⁽⁹⁾ [Technical manual of the Single Integrated Metadata Structure \(SIMS\)](#)

from the DMES, the NAWG agreed on a framework for assessing the quality of ESA 2010 data according to the requirements of Regulation (EU) No 549/2013 ⁽¹⁰⁾. The starting point of this work was the ESS standard for quality reports structure (ESQRS), which is part of SIMS and describes the aspects of data revision policy and practice that should be assessed. The modalities, structure, periodicity and assessment indicators for the quality reports on data transmitted under Regulation (EU) No 549/2013 were adopted in the Commission Implementing Regulation (EU) 2016/2304 of 19 December 2016 ⁽¹¹⁾. The NAWG continued its work on implementing SIMS by developing a harmonised approach to the publication of metadata, based on the Euro-SDMX metadata structure (ESMS) standard. These metadata are prepared from a user perspective and cover information on data revision policy and major revisions.

As the above overview shows, HERP has gradually grown over the years to accommodate new policy and statistical needs.

It is essential to clarify the terminology used throughout this document:

- ‘HERP’ refers to the full set of recommendations covering different aspects of revisions. It comprises the recommendations of the 2017 CMFB TF HERP on routine revisions, the recommendations of the DMES TF BRP on benchmark revisions, the principles of the 2012 ESS guidelines on revision policy for PEEIs, and the CMFB note/guidelines on the communication of revisions published in 2007 and 2017.
- ‘2017 HERP’ or ‘2017 HERP on routine revisions’ refers to the recommendations of the 2017 CMFB TF HERP on routine revisions that amended the recommendations of the 2012 CMFB TF HERP on routine revisions.
- ‘DMES TF BRP recommendations’ refers to the recommendations of the 2016 DMES TF on benchmark revisions that amended the recommendations of the 2012 CMFB TF HERP on benchmark revisions.

HERP comprises recommendations on both benchmark and routine revisions, even though the work on revision policy for routine and benchmark revisions was carried out by two separate task forces.

In this handbook, the following three important revision types used in the process of compiling national accounts are considered:

- Routine revisions (or current revisions) encompass all changes in national accounts estimates for a particular period from the first to the final estimate. These revisions are in principle based on the availability of new information from data sources used to achieve full comparability in volume and price changes with the previous year and for all indicators.
- Benchmark revisions (or major regular revisions) are revisions of data sources or methods used to estimate national accounts indicators. These can affect the gross domestic product (GDP), as well as other important macroeconomic indicators, and can cause discontinuities in time series.
- Non-scheduled revisions take place on an ad-hoc basis, outside the European harmonised approach. While there is no comprehensive set of recommendations agreed at EU level for when a Member State needs to carry out a non-scheduled revision, Chapter 8 of this handbook discusses good practices regarding metadata and communication on non-scheduled revisions.

All three kinds of revision have implications for the compilation and dissemination of national accounts data. These are discussed in the following chapters.

⁽¹⁰⁾ [Regulation \(EU\) No 549/2013](#)

⁽¹¹⁾ [Commission Implementing Regulation \(EU\) 2016/2304](#)

3

Legal requirements

This chapter presents the requirements for revisions that stem from legal acts. The European statistical law — Regulation (EC) 223/2009 ⁽¹²⁾ — defines the requirements for producing European statistics. The European Statistics Code of Practice sets out the principles that ESS compilers must observe and the indicators which apply to these principles. The regulation establishing ESA 2010 — Regulation (EU) No 549/2013 — contains provisions on revisions of data covered by its transmission programme.

3.1. European statistical law

Regulation (EC) No 223/2009 sets out the legal framework for developing, producing and disseminating European statistics. European statistics are compiled through European statistical programmes and according to the statistical principles of professional independence, impartiality, objectivity, reliability, statistical confidentiality and cost effectiveness.

Article 16, Regulation (EC) 223/2009 on the ‘European approach to statistics’ states that *‘If necessary, a coordinated release and revision policy shall be established in cooperation with Member States’*. It also specifies that, where necessary, this applies to European statistics covered by European statistical programmes.

3.2. Code of Practice

The mission of the European Statistical System (ESS), as defined in the [quality declaration of the ESS](#) and included in the European Statistics Code of Practice ⁽¹³⁾, is to *‘provide independent high quality statistical information at European, national and regional levels and to make this information available to everyone for decision-making, research and debate’*. The quality criteria for European statistics are defined in the European Statistical Law ⁽¹⁴⁾. These quality criteria also apply to ESA 2010 ⁽¹⁵⁾ and are assessed using quality indicators ⁽¹⁶⁾.

⁽¹²⁾ [Regulation \(EU\) No 549/2013](#)

⁽¹³⁾ [KS-02-18-142, European Statistics Code of Practice — revised edition 2017](#)

⁽¹⁴⁾ [Regulation \(EC\) No 223/2009, Article 12](#)

⁽¹⁵⁾ [Regulation \(EU\) No 549/2013, Article 4](#)

⁽¹⁶⁾ [Commission Implementing Regulation \(EU\) 2016/2304](#)

The Code of Practice defines the following indicators for assessing revision quality:

- *Principle 6 'Impartiality and Objectivity':*
 'Advance notice is given on major revisions or changes in methodologies.' (Indicator 6.6);
- *Principle 8 'Appropriate Statistical Procedures':*
 'Statistical processes are routinely monitored and revised as required.' (Indicator 8.3);
 'Revisions follow standard, well-established and transparent procedures.' (Indicator 8.5);
- *Principle 12 'Accuracy and Reliability':*
 'Revisions are regularly analysed in order to improve source data, statistical processes and outputs.' (Indicator 12.3).

Each ESS data compiler must comply with the European Statistics Code of Practice. Eurostat carries out peer reviews to assess implementation of the code in the national statistical systems of EU Member States. The European Statistical Governance Advisory Board (ESGAP) carries out a similar review for Eurostat.

3.3. ESA 2010 transmission programme

National accounts data are transmitted to Eurostat under the [ESA 2010 transmission programme \(ESA 2010 TP\)](#), Annex B to Regulation (EU) No 549/2013.

Table A.1 in the annex to this handbook provides an overview of the tables defined in the ESA 2010 TP, their frequency, deadline for transmission, and the period covered ⁽¹⁷⁾.

Even if revisions are an essential part of a good compilation practice for quarterly and annual national accounts, the legislation includes few requirements on them. This leaves space for the Member States and Eurostat to reach voluntary, comprehensive agreements on the delivery and communication of revisions.

For data delivery, footnote 1 to the overview of tables in the ESA 2010 TP specifies that:

- *'When data that have already been transmitted to the Commission (Eurostat) are revised, those revised data shall be transmitted to the Commission (Eurostat) no later than the day they are published by the national authority.'*

This requirement applies to all ESA 2010 tables.

⁽¹⁷⁾ In this handbook, the table numbers from the ESA 2010 TP are used to denote the data tables. For instance, T2 refers to the table of 'Main aggregates of general government — annual'. Since the first two tables of the ESA 2010 TP have the same code T1, T1Q is used for the table of 'Main aggregates — quarterly' and T1A for 'Main aggregates — annual'. In general, the handbook avoids references to codes of variables, sectors and breakdowns from the ESA 2010 TP. However, some such references have been retained where their use brings clarity to compilers of ESA 2010 data. The codes are not extensively spelled out in the handbook; the ESA 2010 TP should be consulted for this. Moreover, the handbook makes numerous references to the term 'quarter' in relation to data revised or transmitted. When the term is used to signify the quarter of the year in which the data transmission takes place, it is presented in the following way: 1st quarter, 2nd quarter, etc. When the quarter is the reference period of data, it is written as first quarter, second quarter, etc. or is abbreviated as Q1, Q2, etc. Finally, data transmission deadlines are presented in the way used by data compilers: *t + months* or *t + days*, where *t* is the reference period (year or quarter). The handbook uses the same convention as the ESA 2010 TP to distinguish between deadlines in months and deadlines in days: the delay is in months, unless it is specified in days.

Certain provisions for changes in the description of the sources and methods used to compile the data exist for T8 and T27 in the ESA 2010 TP:

- For T8 — *‘Member States shall inform the Commission of major methodological or other changes that would affect the data transmitted not later than three months after such change takes effect.’*
- For T27 — *‘Member States shall provide the Commission (Eurostat) with a description of the sources and methods used to compile the data, when they first start to transmit table 27. Member States shall inform the Commission (Eurostat) of any changes to this initial description when they communicate the revised data.’*

For both transmission tables, revisions are only covered if they result from changed data sources or methods. Practical guidelines on implementing the provision for T27 are provided in the *‘Manual on quarterly financial accounts for general government’* ⁽¹⁸⁾.

Given the importance of national accounts data for producing macroeconomic statistics, the procedures for quality assurance and monitoring their production are also regulated by legal provisions. Specifically, quality reporting on and assessment of ESA 2010 data is regulated by Article 4 of Regulation (EU) No 549/2013, which was introduced with Commission Implementing Regulation (EU) 2016/2304 of 19 December 2016.

Chapter 11 provides a detailed description of how national revision policies and practices are being assessed within the context of the ESA 2010 quality reporting and assessment.

⁽¹⁸⁾ [KS-GQ-17-012-EN-N, Manual on quarterly financial accounts for general government — 2017 edition](#)

4

Data revision and consistency of the accounts

Internal consistency is a key characteristic of national accounts data. Therefore, revisions need to take into account the requirement that the overall set of national accounts should be consistent ⁽¹⁹⁾. In addition, national accounts have clear links to other statistical collections that may directly or indirectly trigger revisions. Therefore, revisions of national accounts should anticipate revisions of related statistics. This chapter briefly discusses the consistency aspects that are important when revisions of ESA 2010 data are being planned and carried out.

4.1. Internal consistency of national accounts

It is worth noting that, if full consistency of data is to be achieved from a conceptual view point, the following consistencies should be respected:

- internal consistency of data within each transmission table;
- consistency of data within a particular domain, including between annual and quarterly tables (i.e. supply and use input-output tables (SUIOTs), non-financial accounts, financial accounts, balance sheets);
- consistency between the various national accounts domains.

In practical terms, vintage effects (where data compiled at different points in time are not consistent with each other) may appear as tables are not only transmitted at different frequencies, but also at different times of the year.

Figure 4.1 shows the main transmission requirements of the ESA 2010 TP, as well as links between ESA 2010 tables and other statistical domains. Purple circles represent tables that (also) have a due date in the 9th month of the calendar year, while blue circles represent tables that have a due date in the 12th month of the calendar year. T1Q (the green circle) has a due date at $t + 2$. The grouping of tables with government data is shown because of its direct links with the excessive deficit procedure (EDP) process.

⁽¹⁹⁾ Non-coinciding deadlines of the ESA 2010 TP can result in vintage differences.

Figure 4.1: Graphical illustration of the main transmission requirements of the ESA 2010 TP and links of ESA 2010 data with data in other statistical domains

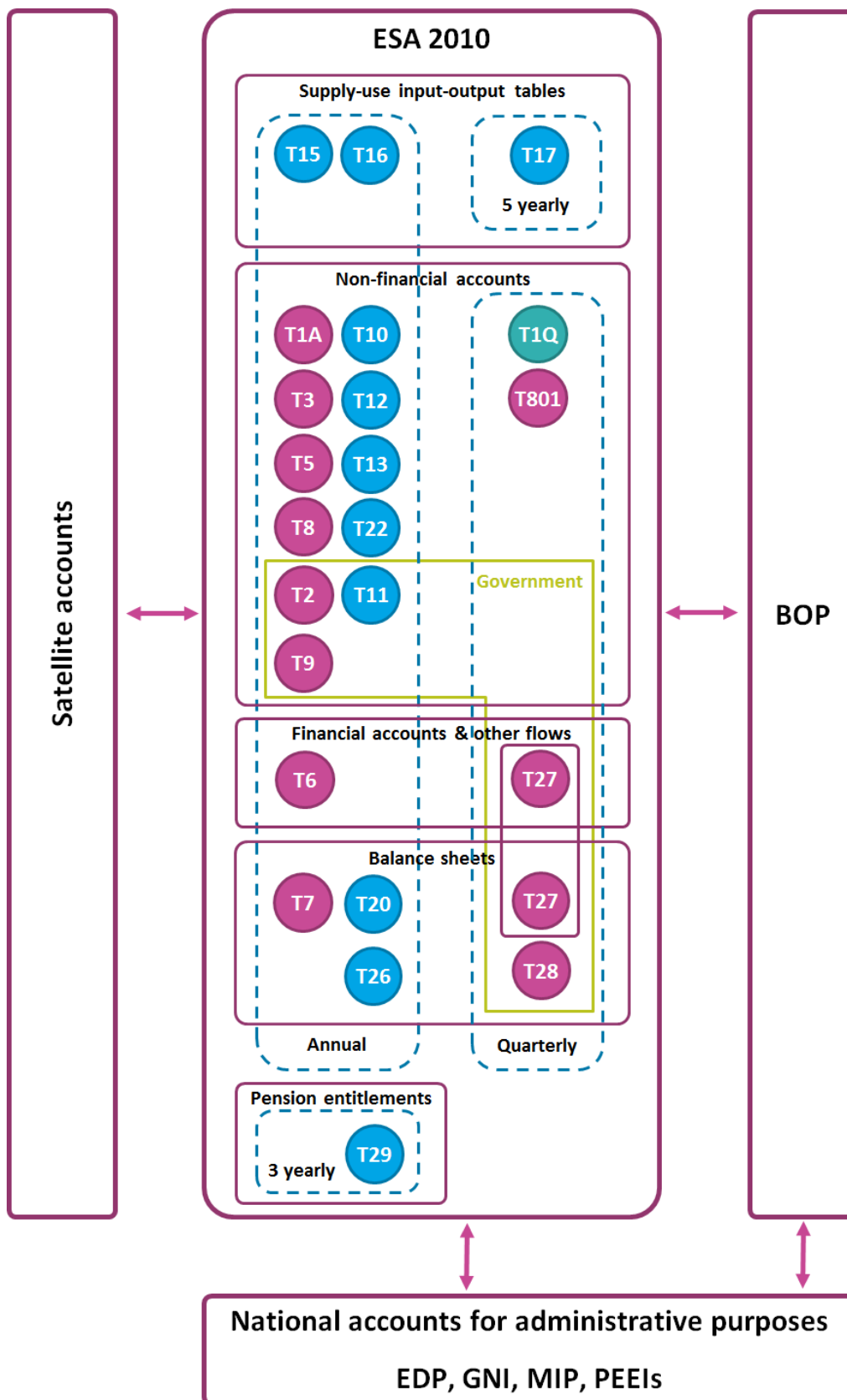
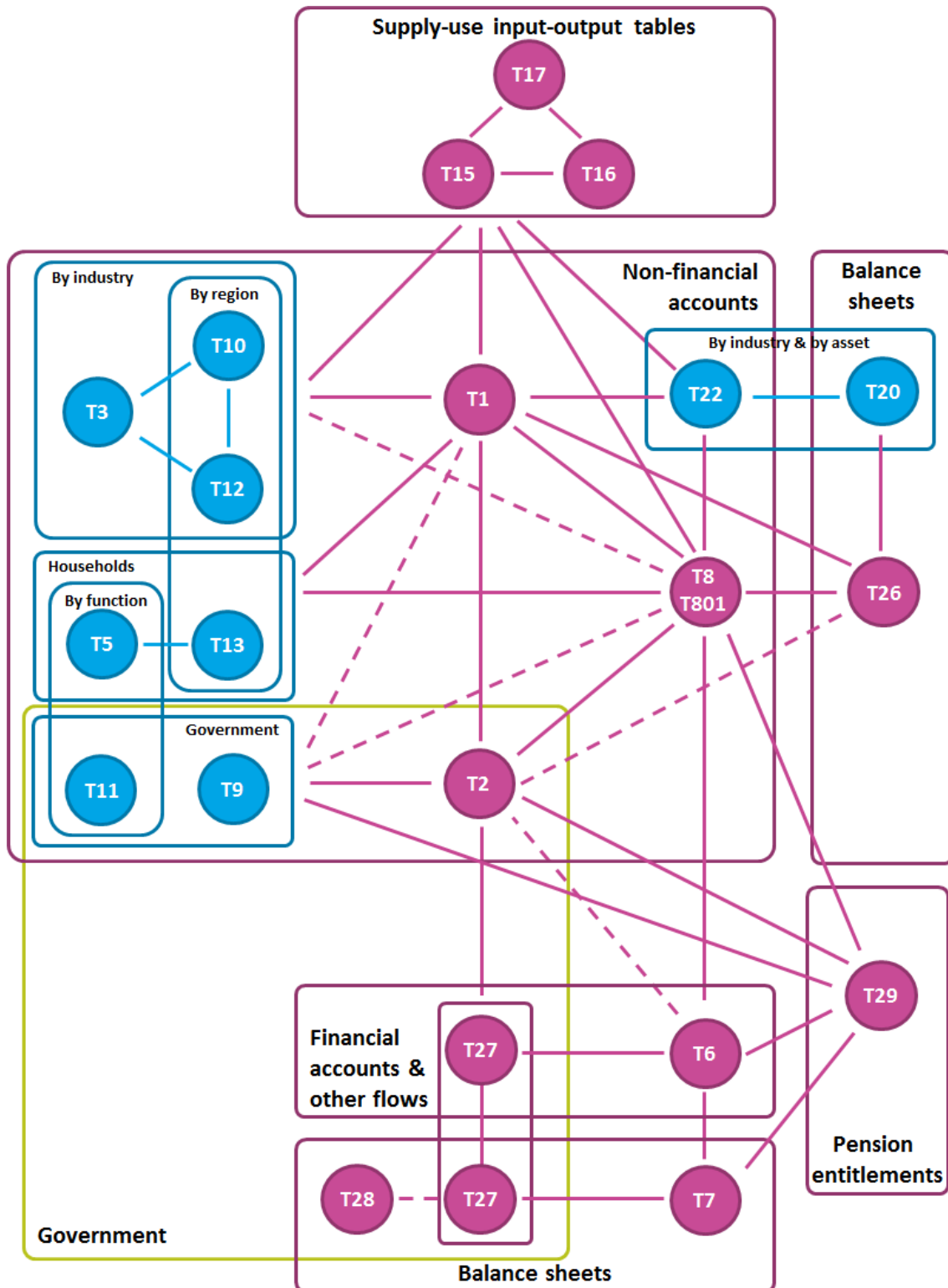


Figure 4.2: Interdependencies within the ESA 2010 TP



When carrying out revisions, it is recommended that data compilers observe the key consistency links between the tables of the ESA 2010 TP, as shown in Figure 4.2.

Solid lines represent common key aggregates and variables with the same definitions in the corresponding linked tables. Dashed lines also represent common variables in the linked tables, but here cross-table consistency is expected to be ensured by the consistency of other tables, e.g. T8 will be consistent with T3 if T1 and T3 are fully consistent.

The lines between T28 and T27 are dashed because, although some financial instruments are the same, their valuation differs (face values vs market prices). T27 contains detailed balance sheet information as well as information on financial transactions and other economic flows for the general government sector.

Blue circles represent tables that provide detailed breakdowns of other ESA 2010 TP tables.

Note that, even if they refer to different parts of the accounts, T7 and T6 have always been fully integrated, and the term 'financial accounts' has always been used loosely to include financial balance sheets (e.g. T7).

4.2. Consistency with national accounts data used for administrative purposes

Macro-economic datasets based on national accounts data are used for governance in the EU. Therefore, national accounts data compiled at national level are provided to Eurostat not only as part of the ESA 2010 TP but also for administrative purposes. In particular:

- **EDP-related data** covering the last 4 years are reported by EU Member States twice per year — at end-March and end-September using harmonised tables ⁽²⁰⁾.
- **Gross national income (GNI) data used for EU's own resources** purposes ⁽²¹⁾ are included in the annual questionnaire that each Member State must return to the Commission by 22 September for the preceding year. Any changes made to the figures for previous years must also be included here. These annual GNI returns are presented for examination to the GNI Committee at its late November meeting (the Committee generally meets two times per year). The GNI process applies to 4 years backwards data plus the earlier years covered by GNI reservations.
- The **macroeconomic imbalances procedure** (MIP) forms part of the EU's annual cycle of economic monitoring and guidance (the European Semester), which begins around November with the Commission's analysis of the economies of all EU countries. This analysis is based on national accounts data transmitted in the 3rd quarter of the year and indicators published in the statistical annex to the alert mechanism report. Countries whose situation requires deeper analysis are subject to an in-depth review, included in an annual country report, issued around February the following year. The MIP process requires availability of 10 years backwards data for the MIP indicators.
- In addition, national accounts data are used to construct the **PEEIs**. These indicators represent a comprehensive set of infra-annual macro-economic statistics aiming to describe the economic and labour market situation as well as price developments in the euro area and the EU. They are of particularly high importance for EU economic and monetary policy.

Each year since 2002, Eurostat, in cooperation with the European Central Bank (ECB), drafts a Status Report on Information Requirements in the European Monetary Union (EMU). This report is

⁽²⁰⁾ Council Regulation 479/2009, as amended by Council Regulation (EU) No 679/2010 and by Commission Regulation (EU) No 220/2014.

⁽²¹⁾ Council Regulation (EC, Euratom) No 1287/2003 of 15 July 2003.

first submitted to the Economic and Financial Committee (EFC) and then to the Economic and Financial Affairs Council (ECOFIN). It reviews progress achieved and the remaining challenges, also with a focus on revisions of the national accounts indicators.

As the underlying methodology is the same, consistency between national accounts data used for administrative purposes and data transmitted to Eurostat as part of the ESA 2010 TP is fundamental.

4.3. Consistency with other domains and satellite accounts

Some statistical domains that do not fall directly under the ESA 2010 framework have clear methodological links with the ESA 2010 methodology. Any inconsistencies with other domains conceptually linked to national accounts should therefore be properly addressed for the produced statistics to be fully consistent. Notably, BOP statistics and national accounts are strongly related, as they are based on harmonised concepts and methods. BOP also provides data for the compilation of national accounts. This close link is one of the reasons for why HERP was designed as a common revision policy for BOP and national accounts.

As satellite accounts extend or modify the tables and accounts in the central framework to serve specific data needs, coherence between national accounts and satellite accounts (with appropriate methodological bridging, taking into account vintage differences, etc.) should be expected as well. In certain cases, countries establish clear links between parts of the satellite accounts and parts of the national accounts. Such a comparison can lead to identification of errors and methodological improvements, which may trigger revisions in national accounts or the satellite accounts.

5

Benchmark revisions

Benchmark revisions (or major regular revisions) are revisions of data sources or methods used to estimate national accounts indicators. These can affect GDP, as well as other important macroeconomic indicators, and can cause discontinuities in time series.

Obviously, users expect consistency and comparability of national accounts and BOP/IIP data within countries, between domains, and across countries. Implementing a European harmonised revision policy would at least eliminate certain vintage issues (where data compiled at different points in time are not consistent with each other).

In addition, the impact of using national accounts data for administrative purposes has to be assessed. As discussed in Chapter 4, national accounts data are used for different administrative procedures like calculating GNI for the EU's own resources, government debt and deficit for the EDP and related government finance statistics (GFS) data and GDP (as denominator) for the EDP and the structural funds. Without a harmonised benchmark revision policy, different timetables and intervals between benchmark revisions in different Member States are observed. A harmonised revision policy would align the benchmark revisions and limit maximum intervals between them. Note that countries that apply an annual benchmark revision policy by definition comply with the recommendations of the harmonised revision policy regarding the benchmark year.

This chapter gives recommendations on how to conduct benchmark (major regular revisions) of ESA 2010 data. These recommendations are derived from the final report of the TF BRP discussed and endorsed by the DMES in their meeting on 14-15 December 2016.

5.1. Scope

In July 2012, the CMFB agreed on the introduction of HERP. A distinction was made between routine and major revisions. Major revisions were divided into major ad-hoc revisions and major regular revisions. Major ad-hoc revisions originate from methodological changes (e.g. introduction of a new ESA) or special events (e.g. EU enlargements). Usually, during these revisions, new or changed basic data sources and/or new estimation models are also incorporated. These major ad-hoc revisions are coordinated at EU level based on an agreed timetable.

On the other hand, major regular revisions take place on a regular basis (5 to 10 years) to incorporate results of changes in basic data sources and/or new estimation methods. According to the harmonised European revision policy, benchmark revisions should take place for reference years ending with '0' and '5', with implementation years ending with '4' and '9' (e.g. according to that guidance a benchmark revision disseminated in 2019 should have 2015 as reference year), unless this is integrated with a European-wide major ad-hoc revision in another year. Both major ad-hoc and major regular revisions should generate 'entire time series' (or as far back as possible).

The TF BRP addressed the issue of harmonising major regular revisions, although some

recommendations are valid for all major revisions. In the final report of the task force (and this handbook) the term ‘benchmark revision’ is used to signify a major regular revision.

Although HERP makes a clear distinction between routine and major revisions, some Member States carry out, or plan to carry out, annual benchmark revisions with an impact on time series beyond the routine revision window of 4 years. However, some of these annual revisions do not comply with the idea of a benchmark revision: a comprehensive update of all relevant sources and methods with impact on all tables of the ESA 2010 TP.

5.2. Definition

Before listing the HERP recommendations on benchmark revisions, it is good to first ask two questions:

- What is a benchmark year?
- What is a harmonised benchmark revision?

What is a benchmark year?

In the original CMFB framework, the timing of major regular revisions was as follows: “*Benchmark years fixed with years ending with ‘0’ and ‘5’, implementing years with years ending ‘4’ and ‘9’, unless this is integrated with a European-wide major occasional revision in another year.*”

A benchmark revision should concern the year for which the results of a benchmark revision are disseminated, not the reference year (which some countries call the ‘benchmark year’). Member States should be free to decide on the most appropriate reference year based on the national data sources that are available.

What is a harmonised benchmark revision?

A harmonised benchmark revision is a coordinated major European revision carried out between major ad-hoc revisions, when they occur. A revision is defined as a ‘benchmark revision’ when the following are all true at the time of dissemination:

- all ESA 2010 tables are aligned ⁽²²⁾;
- time series cover a large number of years (starting in 2000 or 1995 — depending on the requirements in the ESA 2010 TP — or further back), and in any case more than the 4-year depth defined for routine revisions for any quarter other than the 3rd quarter;
- all pending classification issues, for example regarding units, have been resolved/implemented;
- major changes in sources or in compilation methods, if required, have been implemented;
- errors identified at an earlier stage have been corrected.

Although consistency between domains (non-financial accounts and financial accounts, national accounts and rest of the world accounts and BOP/IIP) is the ultimate aim for every publication, this consistency should at least be reached during the dissemination of the results of a (harmonised) benchmark revision.

In summary, a harmonised benchmark revision should ensure that a maximum degree of consistency (within national accounts, across Member States and between domains) is reached at least once every five years.

⁽²²⁾ Although in practice this may not be fully achieved due to various deadlines for reporting ESA tables. Tables delivered with longer transmission delays may incorporate changes made since the first results of the benchmark revision were disseminated.

5.3. Recommendations

Harmonised Benchmark Revision 2019

Member States are recommended to consider the dissemination in 2019 of the results of the next national accounts benchmark revision and a parallel benchmark revision for BOP/IIP.

In 2014, all Member States disseminated the results of the revised national accounts as part of the implementation of ESA 2010. Based on the HERP recommendations, and to use the best possible data to calculate GNI for the EU's own resources and avoid postponing necessary revisions, the next harmonised dissemination year for the results of benchmark revisions should ideally be 2019. Five years between benchmark revisions is seen as the maximum to ensure 'freshness'. Although the principle of harmonising revision policies across countries is strongly supported, not all Member States agreed on the year 2019. Some Member States plan to disseminate the results of their next benchmark revision in 2020 or 2021 ⁽²³⁾, while some already carried out a benchmark revision in 2017 or 2018. In addition, some Member States carry out benchmark revisions on an annual basis (so including in 2019).

Harmonised Benchmark Revision 2024

Member States are recommended to move over time towards 2024 as the dissemination year of the next harmonised benchmark revision.

Although in principle 2019 is agreed as a common year for the next harmonised benchmark revision, in practice some countries cannot comply with this agreement. The next benchmark revision is proposed to be used as a 'springboard' for the subsequent better-harmonised benchmark revision in 2024. This assumes that there is ample lead-time to better address the factors which have made a common dissemination year in 2019-2021 difficult. With more awareness of the importance of harmonised revision and earlier planning, it should be possible to agree to transition to a harmonised benchmark revision in 2024 (= 2019 + 5).

Following HERP recommendations, the interval between benchmark revisions should be maximum 5 years. If some Member States will choose for 2020 or 2021, the following harmonised benchmark revision should be less than 5 years later.

Choosing the year of the next harmonised benchmark revision should of course take into account a possible major ad-hoc revision caused by implementation of the next ESA. The regulation on ESA 2010 was adopted in May 2013. This version of ESA was implemented in 2014. Given the likely timetable for a future revision of the international guidelines of the System of National Accounts and the subsequent time it will take to develop and legislate a new ESA, it seems highly unlikely that the next version of ESA will be implemented by 2024.

Addressing GNI reservations

If a Member State decides to disseminate the results of a benchmark revision after 2019, it could consider addressing separate specific GNI reservations before the planned dissemination year of the next benchmark revision if the reservations concerned do not require a full benchmark revision.

⁽²³⁾ For GNI for the EU's own resources, this will lead to placing reservations to keep the data back to 2010 open pending the verification of the benchmark revision.

For those Member States that do not disseminate the results of the next benchmark revision in 2018 or 2019, the number of 'open years' in the GNI/own resources assessment procedure could be extended. The GNI used for the EU's own resources is calculated based on ESA 95 concepts for the reporting years up to and including 2013. Therefore, for these years there is a discrepancy between GNI used for own resources and the figures in the tables compiled according to the ESA 2010 TP. The differences can, however, be explained in detail through transition items. Apart from this temporary difference, the figures used for the EU's own resources should be fully in line with those of the ESA 2010 TP. Outstanding reservations for GNI for the EU's own resources are normally dealt with during benchmark revisions. If a Member State would address specific GNI reservations without immediately adjusting the whole national accounts system, there would be an additional (temporary) discrepancy.

From a transparency point of view, the figures should be aligned as much as possible. In general, there should be no distinction made between economic data and administrative data. It is the same data based on the same methodological rules used for different purposes. However, addressing separate specific GNI reservations before a benchmark revision could reduce the impact of the benchmark revision itself. Not all reservations would need a full benchmark revision.

Timing within the year

Benchmark revisions, either 5-yearly or carried out at shorter intervals, should be disseminated in line with the harmonised annual revision cycle. Following HERP recommendations on routine revisions, the 3rd quarter seems to be the best time to link the results of a benchmark revision to the harmonised annual revision policy.

As regards the timing of major revisions carried out over the course of the year, the common practice is to make these coincide with the annual revision cycle in the routine revision practice. At first sight, there is no recommendation needed on this issue. However, Member States follow different approaches in their annual revision cycles. For routine revisions, the length of the time series ('depth') is fixed for the different quarters. However, for the 3rd quarter HERP recommends unlimited depth of routine revisions (see Chapter 6). Benchmark revisions must be carried out so that they can be introduced inside a year in accordance with the 3rd quarter routine revision.

Consistency of annual and quarterly data

When the results of a (harmonised) benchmark revision are disseminated, the annual and quarterly data should be aligned for the whole time series.

Quarterly and annual data should be aligned, for both the production account and the sector accounts. However, in practice, due to different deadlines in the ESA TP and national reasons, this is not always the case for short periods of time.

Length of time series

When the results of a (harmonised) benchmark revision are transmitted to Eurostat, the transmission should at least cover consistent time series as required in the ESA TP.

Consistency is one of the key elements important for national accounts. Theoretically, the whole time series and every level of detail should be consistent. In practice, however, it is not possible to publish all results at the same time. An agreed minimum requirement is to publish consistent time series as required under the ESA TP (under ESA 2010 for most tables from 1995 onwards).

When Member States carry out large revisions, they go back many years to avoid breaks in time series, usually beyond periods required for the ESA TP. In order to avoid inconsistencies between parts of time series for different topics/tables, the length of the adjusted time series transmitted on a voluntary basis should be equal to the length of mandatory ones.

Supply and use tables

When the results of a (harmonised) benchmark revision are transmitted to Eurostat, the transmission should cover consistent supply and use tables for as many years as possible. Member States that do not (yet) use supply and use tables in their balancing process should at least transmit updated supply and use tables for the year N-4 (followed in December by the transmission of supply and use tables for the year N-3, as required by the transmission programme).

The supply and use tables (SUTs) should be transmitted annually (after three years). For some Member States, it may not be possible to transmit revised SUTs that are fully consistent with the latest revised estimates of the main GDP aggregate series. This exercise may require additional work and these Member States may not be able to provide a coherent set of integrated tables across years in order to maintain consistency across the national accounts framework in the time series.

HERP recognises the idea that input-output tables (IOTs) form a special category. There should not be an obligation to update 'old' IOTs.

For SUTs, the situation is more varied. For some Member States, all tables are consistent for all years because SUTs are an integral part of the compilation and balancing process. Other Member States would prefer not to have to update SUTs for past years. There is, however, general agreement that the SUTs for the most recent years should be consistent with the updated estimates of the main aggregates.

Consistency of non-financial and financial accounts

At benchmark intervals of the ESA tables, the greatest possible consistency of the non-financial accounts and the financial accounts should be ensured. Policies for revising time series should be coordinated. Financial accounts time series should be reviewed annually. If this causes significant discrepancies in the non-financial accounts to arise in the years after a benchmark revision, an additional benchmark revision of the non-financial accounts may be considered. Discrepancies between non-financial and financial accounts should be monitored closely.

Conceptually, non-financial accounts and financial accounts are aligned. Results are closely connected as financial transactions are often ⁽²⁴⁾ the counterparts of non-financial transactions. In practice, however, there is generally a statistical discrepancy between capital and financial accounts, indicated by different numbers for net lending/borrowing. Moreover, the presentation of balance sheets requires a consistent recording of non-financial and financial stocks and their changes due to transactions, revaluations and other changes in volumes (stock-flow consistency). This should also be monitored closely and revised consistently.

⁽²⁴⁾ A financial transaction always has a counterpart transaction. This counterpart may be another financial transaction or a non-financial transaction.

Both non-financial accounts and financial accounts focus on levels as well as on changes. Due to the inherent higher volatility of financial stocks and transactions, revisions in the financial accounts (including balance sheets) are often higher than those for non-financial aggregates. For this reason, some countries apply a different revision policy to financial accounts. If needed, the entire time series of financial accounts can be adjusted annually in order to obtain consistent stock and transaction series without statistical breaks. The interval for non-financial accounts is up to five years. In case of increased 'tension' between non-financial and financial accounts, as indicated by an increasing statistical discrepancy for the difference between net lending-net borrowing and net financial transactions, revealing systematic errors in non-financial accounts, an extra benchmark revision of the non-financial accounts can be carried out. Given that the more frequent revision of the financial accounts series is often not accompanied by a parallel benchmark revision of the complete ESA TP, these revisions share features of both benchmark and 'annual routine revisions'.

Consistency of national accounts and BOP/IIP

To arrive at consistency of simultaneously published national accounts BOP data from a benchmark revision (including time series) the compilers of both domains should coordinate their work processes and exchange estimates in good time (in concrete terms: early enough to be able to publish simultaneously consistent data).

The BOP is one of the statistical sources used for national accounts. In practice, the relationship between BOP data and national accounts is more complex than this. The different source data are confronted and balanced. The BOP data should be available in time for the national accounts compilation/balancing process. Conversely, relevant national accounts estimates (regarding illegal economic activities, for instance) should also be available in time for the BOP production process.

The resulting national accounts figures (concerning the rest of the world accounts) should ideally equal those of the published BOP figures. Close cooperation between compilers of both domains is a precondition of consistency.

Whether the national accounts and the BOP are produced in the same institution or not should not make any difference to data consistency.

Consistency of national accounts data for administrative purposes

At the time of dissemination of the results of a (harmonised) benchmark revision, national accounts data used for administrative purposes should be fully consistent with data transmitted to Eurostat as part of the ESA 2010 TP.

Differing approaches and principles are applied by EDP/GFS and GNI for EU's own resources due to the particularities of the use of data for administrative purposes. This poses challenges for Member States, for example in terms of handling significant re-classifications within short EDP/GFS deadlines, supplemented with the intense methodological scrutiny. However, experts familiar with both fields consider them very different, operating with different motivations, methods and timetables, such that there is little scope to have approaches brought closer together in a systematic way.

In view of this analysis, only a minimum standard is recommended regarding consistency at the time of a benchmark revision. However, it is obvious that the aim must be to arrive at consistency between national accounts data used for administrative purposes and data transmitted to Eurostat as part of the ESA 2010 TP as much as possible, not only at the time of a benchmark revision.

National major revisions

When a Member State needs to carry out a national major revision outside the European harmonised approach, this Member State can be exempt from carrying out two major revisions within a period of two to three years if it can demonstrate the absence of substantial changes in the major data sources in the year(s) concerned.

The issue if there should be a sort of threshold for national major revisions had been under consideration by the DMES TF BRP. Changes due to the correction of errors or to using improved sources or methods that lead to revisions bigger than this threshold would show a need for major revision. It was decided to leave this question to the Member States involved. The most important reasons for this were the following:

- The impact of new or changed sources on key aggregates is not always easy to estimate.
- National accounts concern more than the key aggregates GDP and GNI.

Member States sometimes have to carry out a major revision outside the harmonised approach. What does this mean for the harmonised approach? Member States that carry out annual major revisions are always compliant with the harmonised approach for the benchmark year. Member States that decide to carry out a benchmark revision outside the scheme of a harmonised approach would probably not carry out a benchmark revision and disseminate results in the same year as the harmonised approach. Due to the workload associated with benchmark revisions (including the compilation of time series), Member States would not carry out two benchmark revisions within two or three years.

What would be a reasonable way to treat such cases where Member States deviate from the harmonised approach? If a Member State has carried out a major revision one or two years before a European harmonised benchmark revision, it could be exempt from participating in the harmonised benchmark revision if it can show that a new major revision is not necessary (for instance because there have been no substantial changes in major sources).

5.4. Practical guidelines

Figure 5.1 shows the main steps and decisions to be taken when carrying out a benchmark revision. Rectangles represent decisions that have to be made, while rounded boxes represent states of the system.

By default, countries that carry out a benchmark revision on an annual basis adhere to the HERP recommendations regarding the benchmark year. Benchmark revisions which are carried out outside of the recommended year and which are not part of an annual benchmark revision policy take the characteristics of a non-scheduled revision.

Ensuring the harmonised use of data sources and methods is fundamental to achieving cross-domain consistency. The harmonisation of data sources requires not only that the same data sources are used by all compilers and all domains, but also that they are used in exactly the same way during compilation. Discrepancies in the use of data sources may reveal a need for conceptual adjustments.

Similarly, new methods are expected to be applied in a harmonised way at national level by all compilers and across all domains. In the rare case where methods are not uniformly applied in all domains, the differences must be documented and verified. Their impact on other domains, through the sequence of accounts, should also be assessed, with a view to harmonising the different approaches. All relevant information should be included in the metadata.

When conducting a benchmark revision, it is considered good practice to move to a new reference year for the transmission of chain-linked volumes. In principle, most countries occasionally introduce a new reference year and are in favour of introducing a new common reference year in the context of benchmark revisions (ending with '0' and '5'). However, some other countries use different approaches, e.g. notably moving to a more recent reference year each year.

Concerning financial accounts and benchmark revisions, discrepancies between non-financial and financial accounts for net lending/net borrowing (ESA 2010 code B.9) should be analysed and reduced where possible. The discrepancies should not be eliminated by 'hiding' them elsewhere in the accounts. The overriding consideration should always be the quality of the accounts information, so any unjustifiable reduction in discrepancies should be avoided. Currently, few countries show zero differences in net lending/net borrowing across sectors for any year. These differences may be considered acceptable by users, especially for the more recent years, say, the years covered by routine revisions. However, there is a tendency in financial accounts to make revisions going back many years.

Verification of GNI used for own resources

The process of verifying GNI used for the EU's own resources contributes to improving the quality of the national accounts data in general. Therefore, ensuring consistency between the GNI used for own resources series and the data transmitted as part of the ESA 2010 TP is crucial for all users of national accounts.

The GNI used for own resources is calculated based on ESA 95 concepts for the reporting years up to and including 2013. Consequently, there is a discrepancy between GNI used for own resources and the figures in the ESA 2010 TP tables for those years. The differences, however, can be explained in detail through transition items. Apart from this temporary difference, the figures used for own resources should be fully in line with those of the ESA 2010 TP.

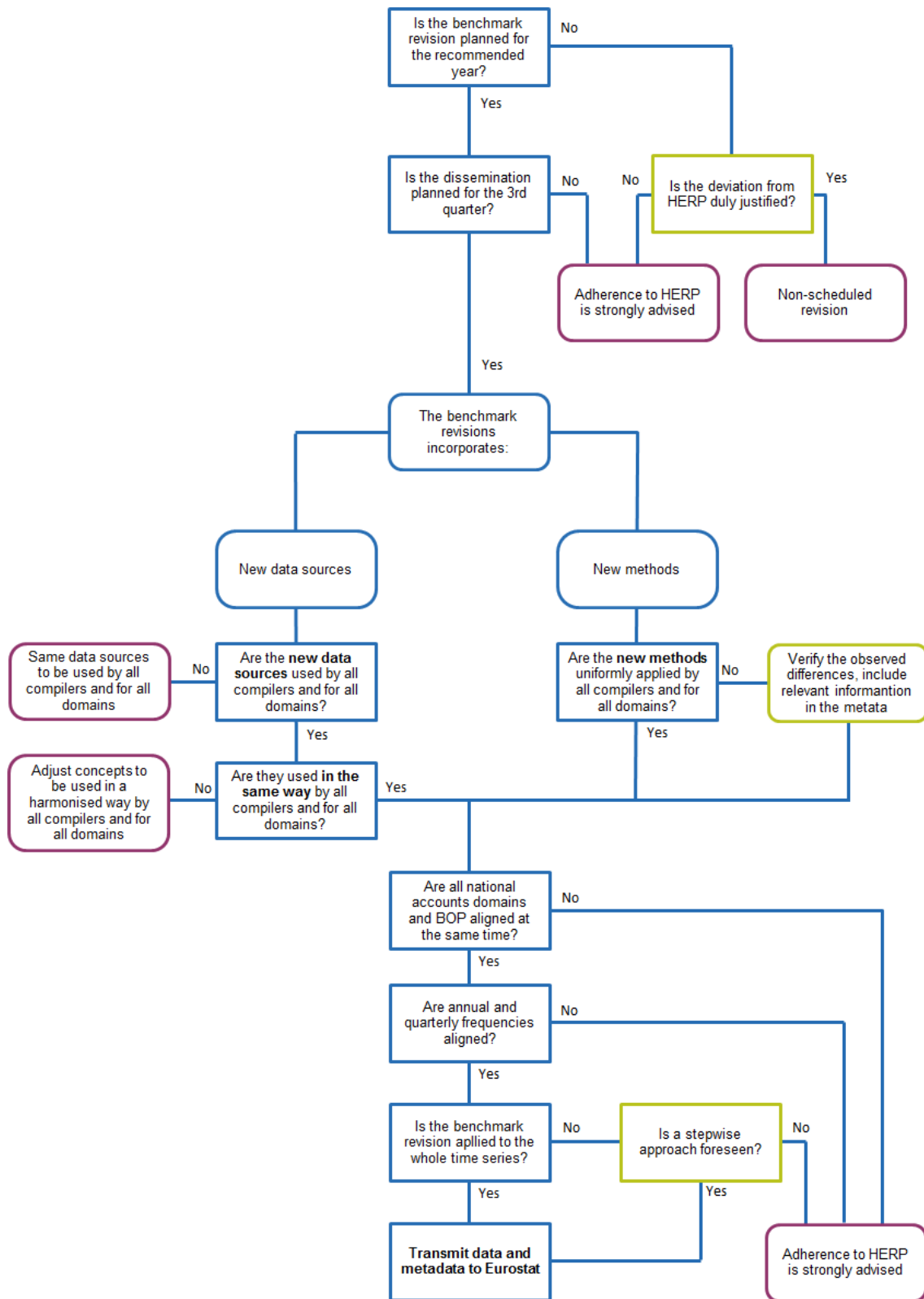
During the multiannual verification cycle of GNI used for the EU's own resources, action points are placed that subsequently lead to revisions of GNI data (the so called action points 'A'). These action points should be addressed by the end of the verification cycle (by September 2019 for the current cycle). In most cases, they will be addressed at the time of the 2019 benchmark revision, though some Member States addressed some of the action points earlier in the process. In any case, it is important that the GNI revision is carried out at the same time as the ESA 2010 TP data revisions.

If an action point is not addressed (or not addressed properly) by the end of the GNI verification cycle, GNI reservations are placed (sometimes they might be placed straightaway). GNI reservations should be addressed by their specific deadlines. These deadlines may be different than the years of the benchmark revisions. Revisions stemming from GNI reservations and carried out for data included in the GNI used for own resources in years other than the year of the benchmark revision should be carried out simultaneously with revisions of ESA 2010 TP data, without waiting until the next benchmark revision.

For the Member States that do not disseminate the results of their next benchmark revision in 2018 or 2019, i.e. before the end of the current GNI verification cycle, GNI reservations will be placed to keep the data back to 2010 open pending the verification of the benchmark revision.

Ensuring full consistency of the GNI used for own resources with ESA 2010 TP data at any point in time is essential. This consistency is checked as a part of the annual GNI data verification process. In any case, if such inconsistency occurs, the reasons for it have to be explained in detail in the GNI quality report accompanying the data submitted in the GNI questionnaire.

Figure 5.1: Practical implementation of HERP recommendations on benchmark revisions



6

Routine revisions

Routine revisions (or current revisions) are changes in published data which are related to the regular data production process and encompass all changes in national accounts estimates for a particular period from the first to the final estimate (e.g. estimated values for missing responses are replaced by reported figures).

In the following sections, the characteristics of HERP for routine revisions are presented. These are also summarised in Table 6.1.

Routine revisions and their proper interpretation have effects on both users and producers of statistical data. From the users' perspective, revisions improve the information available and thus are welcome. However, they may also lead to an adjustment of measures used in economic analysis and as a consequence result in different assessment of the state of the economy. From the producers' perspective, the new information brought by the revisions describes economic developments more precisely, but frequent revisions can damage data credibility. Moreover, an absence of revisions can also indicate that indicators for which more accurate source data are available are not being updated and that errors are not being corrected, i.e. that the statistics published are stable but potentially inaccurate.

A harmonised approach to routine revisions at European level addresses the challenge of coordinating and synchronising the releases. As far as possible, revisions of European statistics aim to maximise transparency of data revisions for the user.

This chapter is based on work carried out by two CMFB task forces, the 2012 CMFB TF HERP and a subsequent CMFB TF HERP that was set up in 2015. The CMFB endorsed the proposals of these task forces in their plenary meetings in July 2012 and June 2017.

6.1. Scope

HERP does not cover the full extent of the reporting requirements specified in the ESA 2010 TP or in the ECB BoP/IIP guideline (ECB/2011/23) and regulation (Regulation (EC) No 184/2005).

HERP covers almost all ESA 2010 tables with a due date in the 9th month of the year. The tables that are transmitted in the 12th month (or multiples thereof) are excluded.

The following statistical domains are covered by HERP:

- national accounts main aggregates, annual and quarterly (T1A and T1Q of the ESA 2010 TP);
- non-financial sector accounts (NFSA), annual and quarterly (T8 and T801 of the ESA 2010 TP);
- government finance statistics (GFS), annual (T2 and T9 of the ESA 2010 TP) and quarterly (T25 ⁽²⁵⁾), as well as quarterly financial accounts and debt of general government (T27 and

⁽²⁵⁾ T25 is not part of the ESA 2010 TP, but is within the scope of HERP.

T28 of the ESA 2010 TP);

- financial accounts and balance sheets for financial assets and liabilities, annual (T6 and T7 of the ESA 2010 TP) and quarterly ⁽²⁶⁾;
- BOP statistics, quarterly;
- international investment position statistics, quarterly.

Therefore, the monthly BOP and structural national accounts tables (e.g. supply and use tables, input-output tables, regional accounts tables, tables on capital formation and capital stock, non-financial assets and functional tables) and voluntary data transmissions are outside the scope of HERP.

The following national accounts tables are not covered by HERP:

- SUIOTs (T15, T16 and T17 of the ESA 2010 TP);
- detailed national accounts main aggregates breakdowns and asset tables (T3, T5, T20, 22 and T26 of the ESA 2010 TP);
- general government expenditure by function (T11 of the ESA 2010 TP);
- regional accounts tables (T10, T12 and T13 of the ESA 2010 TP);
- supplementary table on pension entitlements in social insurance (T29 of the ESA 2010 TP).

The national practices of compiling and revising these tables have been diverse. In 2017 and 2018, the NAWG agreed on recommendations aiming to treat these tables in a coherent way, in line with the routine revisions policy ⁽²⁷⁾. These recommendations are discussed in Chapter 7 of this handbook.

6.2. Definition

According to the 'ESS guidelines on revision policy for PEEIs', '*Routine revisions are changes in published data which are related to the regular data production process (e.g. estimated values for missing responses are replaced by reported figures). Normally, these routine revisions follow a revision policy and are published according to a publicly available pre-announced release/revision calendar (e.g. each time a new data point is published, the revised result for the previous [period] is also published)*'.

6.3. Recommendations

Alignment of frequencies

HERP covers domains with annual and quarterly data reporting frequencies and requires alignment between quarterly and annual tables.

HERP requires that all countries align their quarterly and annual frequencies across all domains in the third quarter.

It is recommended that the frequencies of reporting on ESA 2010 data are aligned, at the coinciding

⁽²⁶⁾ Quarterly financial accounts are reported under the guideline of the ECB of 25 July 2013 on the statistical reporting requirements of the ECB in the field of quarterly financial accounts.

⁽²⁷⁾ With the exception of T11, not covered by the NAWG.

transmission deadlines, for:

- quarterly and annual national accounts;
- quarterly and annual government finance statistics (GFS);
- quarterly and annual non-financial sector accounts (NFSA);
- annual financial accounts which are part of the ESA 2010 TP with the quarterly financial accounts which are published and reported to the ECB.

Routine data revisions of monthly BOP and routine revisions to the national accounts' structural tables will be followed up in the context of the quality frameworks for BOP and national accounts, respectively.

Cross-domain consistency

Each country has a revision practice that is fully consistent across all domains.

HERP requires that national revision practices are aligned across statistical domains.

This implies that annual routine revisions are carried out with identical timing and depth of revision across all statistical domains, to eliminate vintage differences as a source of inconsistencies. This part of the policy is also important in the context of ensuring consistency between national accounts and BOP/IIP.

HERP requires at least one point in time where cross-domain consistency must be achieved; namely, in the 3rd quarter when annual revisions are also carried out. 3rd quarter revisions specifically take into account the requirements of the ESA 2010 TP and BOP/IIP, the guidelines on monetary and financial statistics (MUFA guidelines), and those pertaining to GNI for the EU's own resources and EDP processes as regards the autumn notifications.

Routine revisions of quarterly accounts are strictly related to the release practice that involves up to three sets of estimates for quarterly data. Apart from the voluntary GDP flash estimates at $t + 30$ or $t + 45$ days (for GDP or employment within the framework of national accounts main aggregates), these are the preliminary quarterly estimates of national accounts main aggregates at $t + 60$ days, which broadly correspond to the release of the BOP for the third month of the reference quarter, and the final quarterly estimates of national accounts in the period $t + 85$ days / $t + 95$ days that correspond to the sector accounts and GFS releases, as well as to the quarterly BOP/IIP.

The final release of quarterly estimates should lead to a coherent, full set of data for the quarter and be consistent with the release of revised annual data in the 3rd quarter.

Depth of revisions

HERP specifies the maximum depth of revisions in each quarter for both quarterly and annual statistics.

The depth of the quarterly routine revisions is limited to a maximum of:

- 15 quarters in the 1st quarter;
- 16 quarters in the 2nd quarter;
- unlimited in the 3rd quarter;
- 18 quarters in the 4th quarter.

The depth of the annual routine revisions is limited to a maximum of:

- 3 years in the 1st quarter (data for year N-1 may be submitted for the first time).
- 1 year in the 2nd quarter (excluding year N-1, which may have been submitted in the 1st quarter).
In addition, revisions can extend back 3 years (year N-4 to N-2) in the 2nd quarter when required for national policy purposes.
- Unlimited in the 3rd quarter.
- 1 year in the 4th quarter (excluding year N-1, which was submitted for (at least) the first time in the 3rd quarter).

The 3rd quarter involves the deepest (without restrictions on the depth) revisions that are needed. These revisions do not encompass major new data sources or major methodological changes. If major new data sources or methodological features are added at this revision point, the revision obtains the character of a major revision, with the related need for documentation and communication.

Applicability

Countries commit to carrying out annual routine revisions in the 3rd quarter.

Annual routine revisions are optional in the 1st, 2nd and 4th quarters.

The applicability of quarterly routine revisions is not explicitly defined under HERP. Nonetheless, quarterly routine revisions must be conducted in the 3rd quarter to ensure alignment of data of all reporting frequencies.

Flexibility related to EU administrative purposes

The 3rd quarter annual revision can extend into the 10th month to allow for realignment of ESA 2010 data with the GNI and EDP publication.

The 3rd quarter annual revision is unlimited in depth.

As discussed in Chapter 4, using national accounts data for EU administrative purposes involves two main requirements for data revisions:

1. Following the release of macro-economic data sets in the 1st and the 3rd quarters, countries should be able to carry out revisions in April and October, respectively.
2. Countries should be able to respond to the outcome of the review processes on statistical data used for administrative purposes (EDP, GNI) without this leading to breaks in series. These should be avoided to maintain the time series quality aspect of the data.

In meeting the requirements of the administrative processes, HERP is flexible in two areas:

1. The 3rd quarter annual revision can extend into the 10th month of the year to allow for realignment of ESA 2010 data with the GNI and EDP publication. This is necessary to ensure that national accounts data are consistent across all publications: nationally and at EU level, across the ESA 2010 tables and when used as indicators. Similarly, the 1st quarter revision can extend into the 4th month of the year to allow for realignment with the EDP publication.
2. The 3rd quarter annual revision is unlimited in depth. This opportunity for deeper revision is there to allow countries to respond to the outcome of the review processes on statistical data used for administrative purposes without this leading to breaks in series. It is also available to countries that have institutionalised annual deep revisions.

Table 6.1: Characteristics of the harmonised European revision policy on routine revisions

Year N	1 st quarter (01/01– 31/03)	2 nd quarter (01/04 – 30/06)	3 rd quarter (01/07 – 30/09)	4 th quarter (01/10 – 31/12)
Quarterly data				
Latest quarter available	Year N-1, Q4	Year N, Q1	Year N, Q2	Year N, Q3
Depth of revisions (max)	15 quarters	16 quarters	unlimited	18 quarters
	Year N-1, Q1–Q3	Year N-1, Q1–Q4		Year N, Q1–Q2
	Year N-2, Q1–Q4	Year N-2, Q1–Q4		Year N-1, Q1–Q4
	Year N-3, Q1–Q4	Year N-3, Q1–Q4		Year N-2, Q1–Q4
	Year N-4, Q1–Q4	Year N-4, Q1–Q4		Year N-3, Q1–Q4
				Year N-4, Q1–Q4
Seasonally adjusted data	excluded			
Scope	(1) National accounts main aggregates, (2) Non-financial sector accounts, (3) Government finance statistics, (4) Financial accounts by sector, (5) Balance of payments, (6) International investment position			
Deadlines for quarterly data transmission				
National accounts main aggregates, $t + 2$	28/02 (29/02)	31/05	31/08	30/11
Non-financial sector accounts, $t + 85$ days (**)	26/03 (25/03)	24/06	23/09	24/12
Government finance statistics, $t + 3$ (***)	31/03	30/06	30/09	31/12
Financial accounts, $t + 97$ days	07/04 (06/04)	06/07	05/10	05/01/N+1
Annual data				
Latest full year available	N-1	N-1	N-1	N-1
Depth of revisions (max)	3 years	1 year(*)	unlimited	1 year
	(excluding Year N-1)	(excluding Year N-1)		(excluding Year N-1)
	Year N-2	Year N-2		Year N-2
	Year N-3			
	Year N-4			
Applicability of revision	optional	optional	mandatory	optional
Scope	(1) National accounts main aggregates, (2) Non-financial sector accounts, (3) Government finance statistics, (4) Financial accounts by sector			
Deadlines for annual data transmission				
National accounts main aggregates, $t + 2/9$	28/02 (29/02)		30/09	
Non-financial sector accounts, $t + 9$			30/09	
Government finance statistics, $t + 3/9$	31/03		30/09	
Financial accounts, $t + 9$			30/09	

(*) Revisions can extend to 3 years (year N-4 to N-2) when required for national policy purposes.

(**) For non-euro area Member States the deadline is $t + 3$.

(***) Provisional $t + 85$ days for euro area Member States for table 27 only.

Flexibility related to national policy requirements

HERP 2017 provides an extra revision window for annual data in the 2nd quarter, in addition to the windows in the 1st and 3rd quarters.

Certain countries have an overriding national need as regards the timing of annual routine revisions. In their national economic budget and policy cycles, these countries are required to make revised annual data available in the 2nd quarter of the year.

HERP envisages an extra revision window for annual data in the 2nd quarter, in addition to the windows in the 1st and 3rd quarters. This is to allow the policy to be better aligned with national specific policy use in a number of countries, where data have to be available in the 2nd quarter for budgetary reasons.

The countries to which this applies should commit to carrying out annual routine revisions in the 3rd quarter as well.

6.4. Practical guidelines

The application of revisions is regularly monitored through Eurostat's validation policy and validation checks.

Figure 6.1 presents the main decisions and steps that compilers of national accounts have to take when they incorporate updated information and revise data. Rectangles represent decisions that have to be made, while rounded boxes represent steps/states of the flowchart.

The first part of the flowchart examines whether the newly available information corresponds to an already known data source or to a new one. While for a well-established statistical compilation process new data sources should not be expected in the framework of the routine update of data, this could be the case during the transitional period after a new regulation is put in place or when there is a new economic phenomenon (e.g. globalisation). In such (rare) cases, data compilers will have to decide whether the revision should actually take the characteristics of a benchmark/non-scheduled revision.

The second part of the flowchart examines whether the revised data are fed into all national accounts domains and whether systematic checks on the plausibility and impact of revisions are integrated in the production process.

As soon as the compilation of national accounts indicators has been completed, data should be checked for cross-table consistency. Figure 6.2 presents a decision tree providing a graphical illustration of how the HERP guidelines on routine revisions are expected to be applied to the three main tables of non-financial accounts (T1A/T1Q, T2/T25 and T8/T801, see Figure 4.2) during a production period.

The decision tree can be applied at deadlines of $t + 3$ or every time a new revised table is transmitted during a data production round.

Inconsistencies between tables are considered to be insignificant when they are below the threshold for cross-table inconsistencies set by Eurostat in the ESA 2010 Validation Handbook for each domain.

In practice, certain domains, i.e. GFS/EDP, favour the use of the most recently revised data to respond to user needs. In some cases, this could result in cross-table inconsistencies. Therefore, the validation thresholds for cross-table inconsistencies give margin to data compilers to accommodate numerical differences without needing to revise the whole set of tables.

Figure 6.1: Incorporation of revised information into all concerned ESA 2010 TP tables

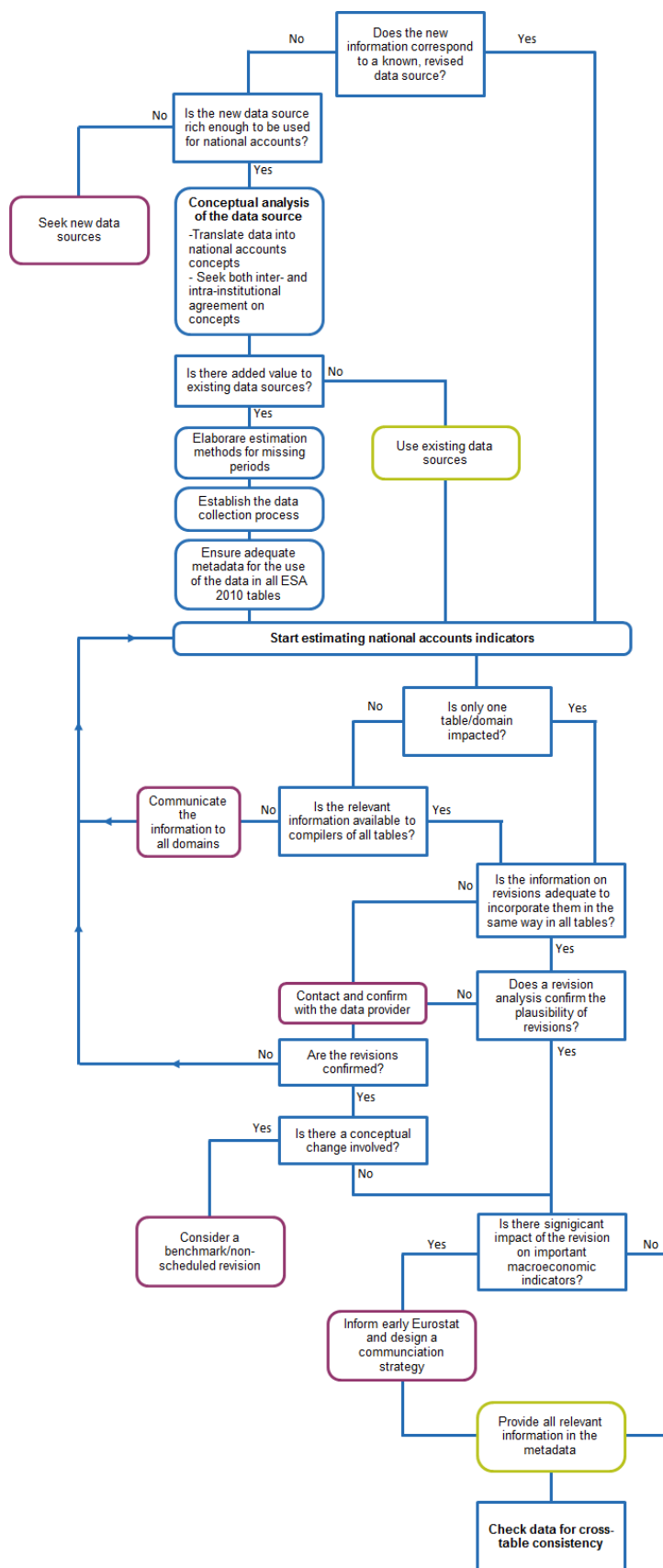
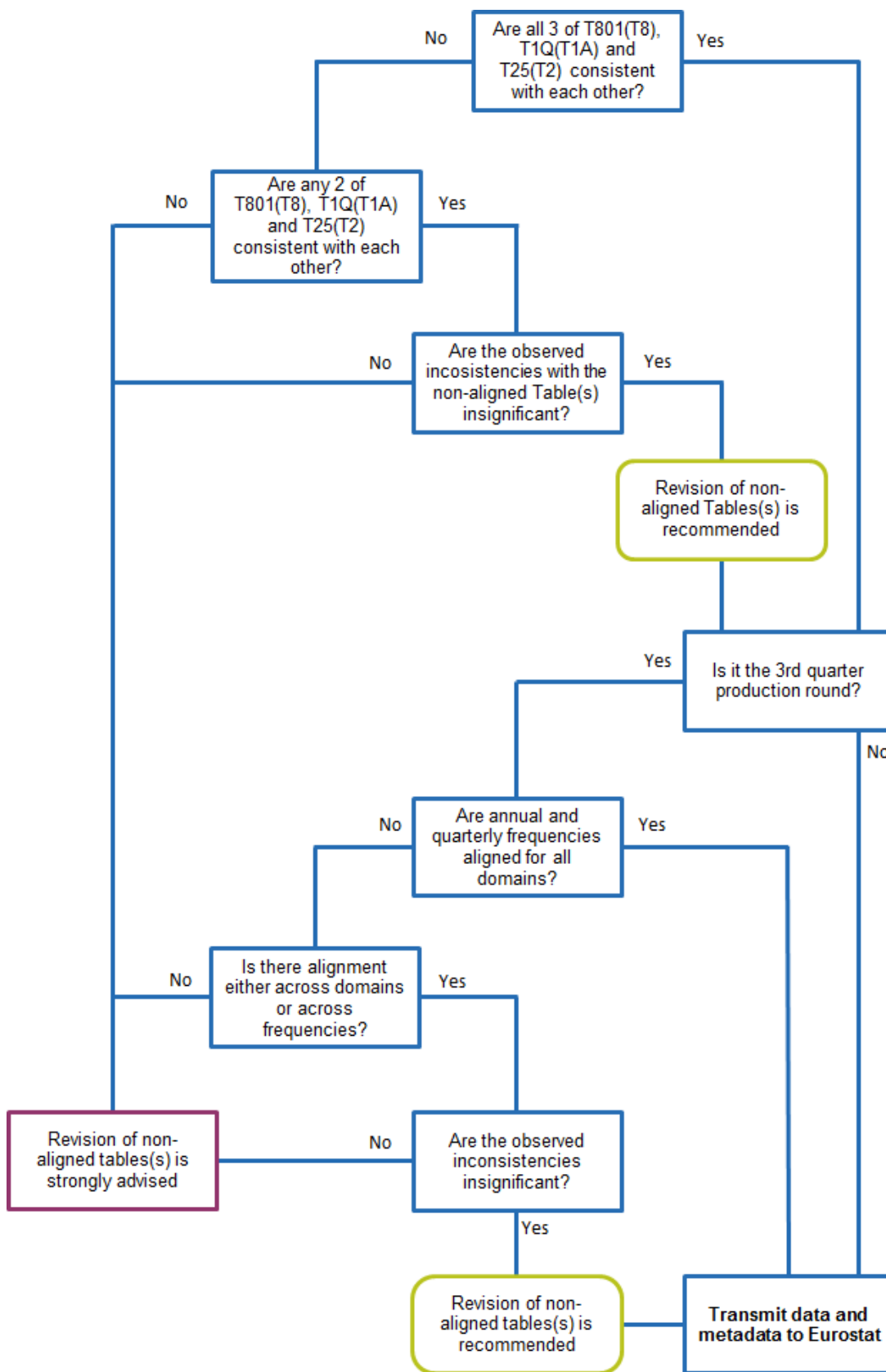


Figure 6.2: Practical implementation of HERP recommendations on routine revisions for the three main tables of non-financial accounts



Financial accounts (by sector)

Only a few countries currently claim to follow the HERP for financial accounts. Many countries incorporate revisions from source data as they occur, and incorporate less timely data sources as soon as these are available. National compilers often decide on the number of periods in which the revisions will be carried out. One reason for not adhering to the HERP could be the fact that in some cases certain important data sources are not available until the 4th quarter, and the country wants revisions to cover more years back than the HERP allows. Moreover, as financial accounts consist not only of flow/transaction data, but also of stock/balance sheet data, any revision window that is limited to recent years implies a discontinuity and level shift to the resulting stock/balance sheet time series. The main sources used to compile financial accounts are various financial statistics datasets, GFS and BOP/IIP.

Notwithstanding the constraints caused by revisions in these main data sources, financial accounts should in principle follow the HERP. Some practical guidance for implementing the HERP specifically when it comes to annual financial accounts (ESA T6 and T7) follows (in a possible order of priority):

- Stock /flow consistency in financial accounts (and in T27) should be ensured at all times. One feature of financial accounts is the expectation of full consistency between stock and flows each year and over the time series, and the simultaneous publication of stock and flow data. Countries generally ensure that there is stock/flow consistency during the compilation process.
- Consistency between annual and quarterly financial accounts (the latter under ECB responsibility) should be ensured. Where differences occur, they should be identified and explained. In many EU Member States, annual financial accounts are the sum of the four quarters (for flows), with vintages of disseminated data being the only difference when comparing with quarterly financial accounts (for example, if a country publishes annual financial accounts only in the 3rd quarter of each year). This is particularly the case where one institution is responsible for compiling both annual and quarterly financial accounts. Where the compilation of annual and quarterly financial accounts is not integrated, more efforts should be made if necessary to bring the consistency of the two frequencies in line.
- Annual financial accounts should in principle be in line with the latest GFS at coinciding transmission deadlines. It should therefore show similar results to the annual and quarterly T27, when summing up the four quarters of the table for the flows. If there are adjustments due to the EDP verification process, these should be reflected in revised financial accounts transmissions, ideally within a month of the mandatory deadline of $t + 9$, i.e. by the end of October.
- Where possible, annual financial accounts should be consistent with the source inputs of financial statistics and BOP/IIP. Differences may arise where the methodology behind these primary statistics differs from ESA 2010, and statistical adjustments to the input data would be needed in such cases. Moreover, data quality for certain flows or positions is considered superior in other sources such as GFS, and this may cause discrepancies with financial statistics and BOP/IIP.
- The discrepancies between financial accounts and NFSA for net lending /net borrowing (ESA 2010 code B.9) of each sector should be monitored for the full time series. Compilers should regularly assess how to reduce these discrepancies through improved sources and integrated and coherent compilation. Financial accounts should in principle be consistent with NFSA, but in practice it is not possible to achieve full consistency due to the different sources and methods needed for the recording of these flows in the two sets of accounts. A few countries eliminate the discrepancy for net lending /net borrowing by sector by using techniques such as apportioning and allocation of differences to transaction categories where sources are of lesser quality. However, it should be noted that use of accounts receivable/payable to 'hide' such discrepancies is not in line with ESA 2010 5.244. Implicitly in the HERP full consistency between NFSA (T8) and annual financial accounts should be

achieved in the 3rd quarter over the whole length of the time series, but in practice this is the case for very few countries. There is work ongoing at European level to examine the causes of the differences and to consider guidelines on how countries should reduce the discrepancies.

- Countries should aim to bring the depth of routine revisions in line with the HERP where possible. For annual financial accounts, the legal deadline is at $t + 9$, which is a quarter when revisions are in any case unlimited in depth under the HERP.
- Eurostat encourages countries to transmit annual financial accounts not only in the 3rd quarter but also, on a voluntary basis, in one or more of the other quarters. In this way, updates for existing years can be made in line with quarterly financial accounts. Furthermore, advanced estimates for year N-1 are usually available in the 1st and 2nd quarters. Where possible, countries should aim to follow the HERP for these voluntary transmissions.

For the purpose of data validation of annual financial accounts at EU level, there is the practical constraint of the timetable for extracting data for the MIP indicators. There are currently three main MIP indicators and one auxiliary indicator based on annual financial accounts. As the data extraction normally falls in late October, the data validation process is limited to a time window which reduces the scope for conducting more elaborate checks, and for countries to make transmissions of amended data. The emphasis is therefore on conducting internal consistency and stock/flow consistency checks. This constraint on the data validation process should, however, not impact on the revision policy.

7

Specific provisions for other ESA 2010 domains

Many annual tables contained in the ESA 2010 TP have a December transmission deadline with a timeliness requirement of 1, 2 or 3 years ($t + 12$, $t + 24$ and $t + 36$). These tables, which describe the structure of the economy, include data on capital stock, capital formation and non-financial assets, supply and use tables, regional tables and the detailed general government functional tables (COFOG). Since neither the 2012 HERP nor the 2017 HERP cover these tables, a coherent approach that ensures alignment with the tables covered by HERP was agreed by the NAWG.

This chapter provides recommendations on how to treat the following tables of the ESA 2010 TP in a coherent way under HERP:

- detailed national accounts main aggregates breakdowns and asset tables (T3, T5, T20, T22 and T26);
- regional accounts tables (T10, T12 and T13);
- supply and use input-output tables (T15, T16 and T17).

In addition, the chapter's last two sections provide recommendations on the application of seasonal adjustment and temporal disaggregation techniques when compiling revised quarterly national accounts data.

7.1. Detailed breakdowns and asset tables for national accounts main aggregates

In addition to the main GDP aggregates transmitted at annual and quarterly frequency as specified in T1 of the ESA 2010 TP, complementary more detailed breakdowns are submitted annually. These consist of detailed breakdowns of main aggregates, assets and employment by industry (T3) and household consumption by COICOP expenditure types (T5), which are due within the same deadline as annual main aggregates ($t + 9$). A cross-classification of assets by industry in terms of stocks and flows (T20 and T22) and non-financial balance sheets with sector breakdowns (T26) are due with a delay of $t + 24$.

7.1.1. Alignment with HERP recommendations

For detailed breakdowns of main aggregates transmitted with the annual transmissions (T3 and T5), consistency is, in principle, already expected. Tables due with a delay of $t + 24$ are also expected to be consistent with the main aggregates published earlier ($t + 9$).

Since consistency checks are an important part of the validation process, countries are encouraged to align their transmissions or to explain if detailed main aggregates are not aligned with the same industry or asset breakdowns transmitted in T1. Differences should be as limited as possible and

temporary, i.e. data should be aligned with a retransmission as soon as possible for regular revisions.

For benchmark revisions, adequate planning should make it feasible to align detailed breakdowns with main aggregates. If this is not feasible, a staged dataset release that first aligns the most recent years and later the back data might be acceptable. In such cases, flags for series breaks and metadata would need to be provided to clearly describe data coherence and comparability within the ESA 2010 methodological framework and any deviations from it.

7.1.2. Country-specific practices

Countries are asked to provide metadata on their revision practices as part of their annual quality report. In general, the revision policy for the detailed breakdowns of main GDP aggregates follows the transmission deadlines.

Under the ESA 2010 Validation Handbook, validation checks include consistency checks on series that are transmitted across various tables of the ESA 2010 TP. If there are inconsistencies, excluding allowance for vintage effects, then countries are asked to explain any significant difference in metadata and to use the appropriate observation status flag in the statistical data and metadata exchange standard (SDMX), for example 'D' for definition differs, 'B' for a break in the series and 'U' for low reliability. Countries must do this until they can align the series across transmissions.

Experience with benchmark revisions associated with the introduction of ESA 2010 suggests that countries generally ensure that benchmark revisions for detailed breakdowns of main aggregates are synchronised with revisions of annual national accounts. For detailed aggregates, revisions are carried out in the release following the revision of main aggregates.

7.2. Regional accounts

Regional accounts are reported according to the common classification of territorial units for statistics (NUTS).

Regional accounts figures must be provided to Eurostat at:

- $t + 12$ for total gross value added (GVA), employment in persons and population by NUTS 2 region;
- $t + 24$ for the detailed breakdowns by NUTS 3, the breakdown of GVA by the statistical classification of economic activities in the European Community (NACE) and employment in persons;
- $t + 24$ for the remaining variables (compensation of employees, gross fixed capital formation, employment in hours worked and household accounts) by NUTS 2.

The current assessment of the revision policy followed by EU Member States for regional accounts is based on information submitted in quality reports and/or practices observed during data validation. It shows that regional accounts are updated once per year, usually towards the end of the year, and that the depth of the revision is, in general, the same as for national accounts.

7.2.1. Alignment with HERP recommendations

Regional accounts are by necessity compiled after national accounts. Thus, it is not possible for routine or benchmark revisions in regional accounts to be perfectly synchronised with revisions in national accounts. However, a release of new regional accounts data should be aligned with the most recent release of national accounts. Regional accounts should follow the same cycle for routine revisions as national accounts for the total economy. Revisions could be deeper for regional data if new data sources are used for the regionalisation of national figures.

Occasionally, there may also be routine revisions in regional accounts for previous years without any corresponding change in annual national accounts. This may be due to a change in the source data used for the regionalisation of certain variables.

Additional revisions can be carried out in regional accounts due to geographic revisions of the NUTS boundaries. The NUTS regulation allows for an extended period of up to two years after the first transmission under the new NUTS classification to provide the complete historical time series. The first transmission should cover as many years as possible in the new NUTS classification and in any case not less than three years.

Benchmark revisions in regional accounts are synchronised with revisions in annual national accounts. They are included in regional accounts in the release following revision of national accounts. In some cases, regional compilers may find it difficult to carry out a revision for the whole time series of regional accounts. This is especially true for countries that rely more heavily on bottom-up methods when compiling their regional accounts, as they have to incorporate the revised annual accounts for previous years into regional accounts in a very short time. In such cases, it can be justified to publish data for only the most recent years based on the new benchmark revision and to publish the remaining series later in the year or in the next annual release.

7.2.2. Country-specific practices

With every regional accounts data transmission, countries are encouraged to specify the corresponding national accounts vintage, as Eurostat routinely checks the consistency of regional accounts with the latest transmitted annual accounts. In addition, countries are asked to transmit information on the routine revisions of regional accounts.

In the case of benchmark revisions, adequate planning should make it possible to align regional accounts with the released benchmarked national accounts. If this is not feasible, a staggered regional accounts release that first aligns the most recent years and later the back data might be acceptable.

7.3. Supply and use tables and input-output tables

Supply and use tables (SUTs) (T15 and T16 of the ESA TP) are subject to a maximum transmission deadline of 36 months after the end of the reference year. This means that data for the reference year 2015 must be transmitted to Eurostat by the end of 2018. For reference years ending with '0' and '5', input-output tables (IOTs) and additional use tables are also required. SUIOTs consist of annual data.

SUTs and IOTs are checked for consistency against other tables in the ESA TP, in particular T1 and T3. Consistency between macro aggregates such as GDP and final demand components and SUTs is of high relevance for users.

7.3.1. Alignment with HERP recommendations

Countries recognise that the compilation process for SUIOTs is a complex and long process. Therefore, revising SUTs at the same frequency as revising annual national accounts is not a regular practice. Around 20 countries produce one definite set of SUTs at the deadline of $t + 36$. In certain cases, the production of SUTs may trigger revisions in other parts of national accounts. Seven to ten countries carry out SUTs revisions in the 2-3 years following the first transmission. IOTs are five-yearly mandatory tables and are usually compiled only once. Very few countries revise IOTs in relation to SUTs revisions. In order to achieve better alignment with HERP recommendations, Member States are recommended to carry out:

- Routine revision of SUTs for at least one year back: revised data for the year N-1 should be sent together with the data for reference year N that are due at $t + 36$, in line with the rest of the ESA 2010 TP tables.
- A benchmark revision in 2024, when transmitting SUTs for the reference year 2021 will be mandatory. Countries are encouraged to retransmit the SUIOTs for the year 2020 in line with the benchmarked data of the ESA 2010 TP.

As of 2018, previous years' prices tables are also required. Therefore, these recommendations apply both to current and previous years' prices.

7.3.2. Country-specific practices

The revision process depends strongly on how integrated SUTs compilation is in the national accounts framework at country level. When there is integration, revisions in annual data in one domain are taken into account in other domains. Few countries compile quarterly SUTs, though these tables could be compiled concurrently with the quarterly national accounts.

7.4. Supplementary table on pension entitlements in social insurance

T29 on accrued-to-date pension entitlements in social insurance is a new, supplementary table of ESA 2010 TP. It was transmitted for the very first time at the end of 2017. This table is subject to limited reporting requirements, namely transmission every 3 years of 3-yearly data at $t + 24$. Thus, it has not undergone a revision cycle yet, either for routine or benchmark/major revisions.

7.4.1. Alignment with HERP recommendations

It is essential that the compilation and revisions of T29 are closely coordinated with the related annual non-financial and financial accounts tables, namely T6, T7, T8 and T9 of ESA 2010 TP which are transmitted at $t + 9$.

The objective of the revision policy for T29 should be to maintain consistency with the above-mentioned tables at the time of its mandatory transmission, as far as pension-related social contributions, benefits and pension entitlements by sector are concerned. Any discrepancies due to the three-month time lag between the transmissions of national accounts and the supplementary table on pension entitlements should be appropriately documented in the metadata.

Regarding benchmark revisions, it is recommended that T29 compilers are closely involved in the national accounts benchmark revision process with respect to the variables on pensions in social insurance. It is also recommended that uniform recording of social insurance pension schemes across non-financial accounts, financial accounts and the supplementary table on pension is applied. For example, the mandatory transmission of T29 in 2020 should reflect the results of latest benchmark revisions in national accounts. Conversely, any methodological revisions initiated on the T29 side should be closely coordinated with the annual revisions of non-financial and financial accounts.

7.4.2. Country-specific practices

Several countries indicated a possibility that national data may be transmitted annually on a voluntary basis. In such a case, voluntary transmissions of T29 should be closely coordinated with the annual revision cycles of non-financial and financial accounts and should incorporate the latest revisions of relevant annual indicators from T6, T7 T8 and T9 of the ESA 2010 TP.

7.5. Temporal disaggregation

Temporal disaggregation, benchmarking and reconciliation techniques are often used in national accounts in order to produce quarterly data ⁽²⁸⁾. As these techniques are frequently based on statistical models, the availability of new information or the revision of only data for recent years generates revisions for the whole time span of the quarterly series. HERP requires that revisions are restricted to a certain depth in all quarters except for the 3rd quarter. Thus, countries applying the temporal disaggregation method face challenges in aligning with HERP.

Ideally, quarterly data revisions should follow the revision behaviour of annual data, and should not be subject to revisions when annual data are not revised.

To achieve this, temporal disaggregation techniques could be used on the whole time span (or, even better, a significant sub-sample of the last 10-15 years) and the infra-annual data which are already consistent with the annual data could be frozen.

When doing this, Member States must always check that this approach does not introduce any breaks in the series. If a break in the series is detected, the whole time span used for the temporal disaggregation technique should be revised. The risk of this is very low when revisions to annual data are low and, under normal circumstances, no break in infra-annual data is expected if there is no break between the non-revised and the revised annual time series.

7.6. Seasonal adjustment

While HERP excludes seasonally adjusted quarterly series from its scope, this section presents the options for seasonal adjustment based on the specific ESS guidelines on Seasonal Adjustment ⁽²⁹⁾.

Similarly to temporal disaggregation techniques, seasonally adjusted data are also revised for the whole time span whenever there is a new observation and/or revision, even if it concerns only the latest quarters.

According to the guidelines, the best solution to this problem is the following:

'A starting date for the earliest revision of the seasonally adjusted data should be set at the beginning of a year, three years before the revision period of the unadjusted data. This date should be kept fixed for up to five years. Statistical agencies should periodically investigate for the existence of breaks in the revised series. When breaks are detected, statistical agencies can decide to reset the starting date.'

A different approach would be to opt for the current adjustment or controlled current adjustment, explained below:

- Current adjustment: the model, filters, outliers and regression parameters are re-identified and the respective parameters and factors re-estimated at appropriately set review periods. The seasonal and calendar factors to be used to adjust for seasonal and calendar effects of new unadjusted data in-between the review periods are those estimated in the previous review period and forecasted up to the next review period.
- Controlled current adjustment: forecasted seasonal and calendar factors derived from a current adjustment are used to seasonally adjust the new or revised unadjusted data. However, an internal check is performed against the results of the 'partial concurrent adjustment', which is preferred if there is a significant difference. This means that each series needs to be seasonally adjusted twice. The approach is only practicable for a limited number of

⁽²⁸⁾ [KS-06-18-355-EN-N, ESS guidelines on temporal disaggregation, benchmarking and reconciliation — 2018 edition](#)

⁽²⁹⁾ [KS-GQ-15-001-EN-N, ESS guidelines on Seasonal Adjustment — 2015 edition](#)

important series.

According to the guidelines, the controlled current adjustment is considered as the best alternative in order to minimise the frequency of revisions where the seasonal component is stable enough, past data have been revised for less than two years and a full review of all seasonal adjustment parameters is undertaken at least once a year. A current adjustment with a full review every year is considered as an acceptable option.

8

Metadata and communication on revisions

Revisions should be considered a normal activity that progressively improves the quality and in particular the accuracy of data. Consequently, revision policy should be recognised as an important aspect of good governance in statistics. Good governance in statistics, in turn, is part of the broader areas of public sector transparency and accountability.

For any kind of revisions, a clear communication strategy improves the transparency of the revision procedure and, consequently, user confidence. It follows that a well-established and publicly communicated revision policy is a sign of a robust statistical system.

Principle 15 of the European Statistics Code of Practice, on accessibility and clarity, states that European statistics should be accompanied by supporting metadata and guidance. Statistics and the corresponding metadata should be presented and archived in a way that makes it easy to correctly interpret them and to perform meaningful comparisons.

This chapter presents recommendations for using metadata in revisions and further discusses practical recommendations on communicating benchmark, routine and non-scheduled revisions. These recommendations are particularly useful in cases where the compilation of metadata is not incorporated into the production process.

8.1. Metadata on revisions

Why metadata is important for revisions

When it comes to revisions, metadata is important for two reasons.

First, metadata can provide valuable information to explain why some countries revise earlier quarters more frequently than others. Revision policies and practices may vary across countries and it is important for Eurostat's validation process to receive information on the established national policies and explanations of significant revisions that can be shared with users.

Second, metadata provides information on what is causing significant revisions, i.e. those that exceed the pre-defined acceptable thresholds. When transmitting the results of a significant revision, it would be helpful if data compilers could provide users with a valid interpretation of what caused the significant revision. Member States are, therefore, asked to address the following questions on significant revisions:

- This revision was caused by a change in:
 - source data;
 - methodology;
 - classification decision;

- a combination of the above.
- If the revision was caused by a change in source, which of the following categories contributed to the revision most?
 - benchmarking to annual national accounts;
 - new survey;
 - administrative source;
 - other.
- If the revision was caused by a change in methodology, which of the following categories contributed to the revision most?
 - seasonal adjustment method;
 - model, e.g. PIM;
 - GNI action points or reservations;
 - EDP action points/harmonisation work;
 - data processing;
 - national accounts methodology;
 - other.

The ESMS and the ESS Metadata Handler

Principle 15 of the European Statistics Code of Practice, recommends that metadata are documented according to standardised metadata systems.

The ESSC endorsed the [SIMS 2.0](#) and recommended that it be implemented in all statistical domains by 2018. The SIMS includes a description and representation of statistical metadata concepts to be used to document statistical data and provides summary information that is useful for assessing data quality and for the production process in general. The broad concepts used are compatible with the statistical data and metadata exchange standard (SDMX) cross-domain concepts and with the common terminology published in the SDMX Glossary (2016).

The SIMS defines a set of concepts and allows the creation of different output files comprising information related to all the concepts listed or a subset of those concepts. These output files can be used for different purposes (data dissemination, quality reporting, etc.). The IT tool used for reporting metadata is the ESS Metadata Handler.

Concept 17 of SIMS specifically asks for metadata related to revision policy and data revision practice. A comprehensive description of the revision policy and revision practice must be supplied by Member States.

In addition to the description of revisions required by Concept 17, additional reference to revisions can be made indirectly in other concepts, e.g. documentation on methodology, documentation on quality management, quality assurance, accuracy, comparability over time, frequency of data collection and frequency of dissemination.

Metadata can also be provided with the help of flags. It is important to accurately associate each observation or series with a suitable data flag when appropriate. If possible, adding some complementary information on the nature of and reason for the flag can help clarify the details of each case. The ESA 2010 Validation Handbook contains the rules for using data flags.

The above recommendations should be followed for the generic ESA 2010 metadata as well as for the domain-specific metadata which already exist or will be developed in the future.

8.2. Communication of revisions

Benchmark revisions

The recommendations on the coordination and communication of benchmark revisions stem from the final report of the DMES TF BRP.

Coordination and communication of benchmark revisions

The coordination and communication of benchmark revisions should be prepared well in advance. The CMFB guidelines on communication of major statistical revisions in the EU should be applied. Eurostat should play a central role in the communication of European harmonised benchmark revisions.

The CMFB guidelines on communicating major statistical revisions in the EU of 4 July 2007 operationalise Principle 8 of the Code of Practice (*'... Revisions follow standard, well-established and transparent procedures'*). In the case of a national major revision, these are the guidelines that the Member State concerned should apply. In the case of a European harmonised benchmark revision, Eurostat should take the lead regarding coordination and communication at the EU level.

In addition, Principle 6 of the Code of Practice, on impartiality and objectivity, requires that advance notice is given on major revisions or changes in methodologies.

Users appreciated the way the change to ESA 2010 was handled (regarding coordination, transmission using SDMX and communication).

Here are some elements of good communication practices (partly based on the CMFB guidelines):

- A European harmonised benchmark revision should be carefully coordinated across the ESS and carried out in close cooperation with the CMFB and the European system of central banks (ESCB), in order to achieve the best possible alignment with the balance of payment and financial accounts.
- In the case of a national major revision, if national accounts and BOP are not produced by the same institution, the organisations involved should agree on the choice of a benchmark year and coordinate their planning and communication. Eurostat could collect and make available to users a calendar of expected national major revisions.
- A communication plan should be prepared early on in the revision process.
- A benchmark revision should be publicly announced in advance of the release date (at least a quarter in advance for annual and quarterly statistics). At the same time, sufficiently detailed information should be provided in an official letter to the Chairperson of the ESSC (i.e. the Director General of Eurostat).
- Some 'advanced users' could be informed about the benchmark revision separately. This communication could be more detailed/technical than the communication to the general public, though it may not of course violate embargo rules.
- The actual release of the results of a benchmark revision should be accompanied by sufficient documentation that allows users to appropriately assess the new presentation of the macro-economic and/or social situation.
- In the case of a 'pure' benchmark revision, users should be assured that no conceptual changes are involved.

It is useful to have background documents and Q&A notes available on the website.

Routine revisions

Routine revisions are carried out regularly and at fixed dates. Given their periodic nature, it is expected that the following aspects are pre-announced (i.e. made known to stakeholders, policy makers and the general public in advance on the basis of a pre-established timetable):

- the revision cycle for at least the current calendar year;
- an overview of the reasons for the expected routine revisions.

In this context, any change to the revision cycle should be pre-announced, documented, and explained.

Further information on revisions is expected in the metadata. Metadata should contain adequate information on:

- the reasons for the revision, including reclassifications of units and revisions to address EDP country-specific reservations;
- the scope of the revisions in terms of transactions/sectors affected;
- revision size;
- references to relevant public documentation;
- inconsistencies with related and not (yet) revised statistics;
- possible breaks in time-series;
- consistency of flagged data, e.g. 'provisional' or 'estimated' for first estimates;
- in the special case that revisions concern the correction of errors, enough clarification on the adjustments.

Non-scheduled revisions

Non-scheduled revisions take place on an ad-hoc basis. Since they could confuse users and thus damage user confidence in official statistics, non-scheduled revisions should always be an exception and should be avoided where possible. If the benefits of carrying out a non-scheduled revision are assessed as clearly outweighing the disadvantages of waiting to integrate the results into a forthcoming benchmark revision, there should be a clear communication strategy.

Based on the CMFB guidelines on communicating major statistical revisions in the EU, Eurostat recommends that Member States take the following actions when it comes to non-scheduled revisions:

- A major revision should be publicly announced in advance of the release date, at least a quarter in advance for annual and quarterly statistics. If circumstances mean that the revision must be undertaken at shorter notice, Member States are strongly requested to immediately inform Eurostat.
- At the same time, sufficiently detailed information on data underlying the PEEIs should be provided in an official letter to the Director General of Eurostat, as the Chairperson of the ESSC.
- Even if the extent of the revisions is not known in numerical terms, information (online or in publication format) explaining the reasons for the revisions and their scope should be made available to production units in Eurostat.
- The actual release of a major revision should be accompanied by sufficient documentation that allows users to correctly assess the new presentation of the macro-economic and/or social situation.
- Coordination between different teams working within the same institution, as well as between

institutions that are co-responsible for data collection, should be ensured.

In addition, the following information should be included in the metadata that are transmitted together with the corresponding data:

- impact of the revisions, with possible reference to any revision analysis conducted and published;
- references to the pre-announcement of the revision and other relevant public documentation.

Table 8.1 shows an indicative planning of actions that should follow after a need for major non-scheduled revision is identified.

Table 8.1: Indicative planning of actions to take place in case of non-scheduled revisions

Time	Action
$t + 0$ days	A need for major non-scheduled revision is identified. Data provider is contacted.
$t + 1$ days	Major revision is confirmed.
$t + 1$ days	Data compilers in all concerned domains are informed. All concerned institutions at national level are informed.
$t + 5$ days	The scope and depth of revisions has been identified. A first estimate of the impact on key indicators is available. Eurostat is informed about the revisions and whether technical assistance will be needed.
$t + 10$ days	A first schedule of planned data transmissions is communicated to Eurostat.
$t + 20$ days	A detailed report on the scope, depth and impact of revisions is available and communicated to Eurostat. A communication plan has been agreed by national stakeholders and communicated to Eurostat. The Member State concerned may share with Eurostat any available data that would shed light on the impact of revisions.
$t + 30$ days	Eurostat's first analysis of the revisions is available. A communication plan at national and EU level is available. Eurostat and the Member State concerned agree on the need for technical assistance.
	Eurostat provides further comments upon delivery of the data.
	Related documentation is published, together with data disseminated based on the communication plan.
	The correct application of revisions is monitored through subsequent production rounds, if necessary.

9

National revision policies and practices

National revision policies play a very important role in data revisions. A well-designed national revision policy makes good revision practices possible. A well-documented and communicated national revision policy contributes to the professional image of a statistical data compiler.

This chapter discusses the key principles of implementing a successful revision policy (including routine, benchmark and non-scheduled revisions) by drawing examples from the experience of NSIs.

9.1. General considerations concerning national revision policies

National revision policies adhere to the principles of the European Statistics Code of Practice, namely:

- Principle 6 ‘Impartiality and objectivity’ (indicator 6.6: Advance notice is given on major revisions or changes in methodologies);
- Principle 8 ‘Appropriate Statistical Procedures’ (indicator 8.6: Revisions follow standard, well-established and transparent procedures);
- Principle 12 ‘Accuracy and Reliability’ (indicator 12.3: Revisions are regularly analysed in order to improve statistical processes).

These principles suggest that statistical compilers should define and communicate how data revisions are planned, carried out, analysed and disseminated nationally.

Even though the details of national experiences differ, in general Member States aim to adhere to the HERP principles concerning revision policy for quarterly and annual national accounts. National compilers adopt a transparent revision policy for national accounts and for other domains, establishing the rules under which data are subject to revision. They implement the ESA 2010 regulation, including its transmission programme, and follow the European Statistics Code of Practice, the Quality Assurance Framework and the ESS Guidelines on Revision Policy for PEEIs.

Based on their experience and implemented practices, national compilers identify the following recommendations as the backbone of the revision policy:

1. dissemination of revisions is made known to stakeholders, policy makers and the general public in advance on the basis of a pre-established timetable;
2. at time of publication, data are classified as either preliminary, provisional or definitive;
3. causes of revisions are always explained and any interruption in time series always reported and explained;
4. communication of revisions concerns qualitative and quantitative aspects;

5. revisions due to significant errors are disseminated outside the pre-established calendar.

The national revision policies of Member States vary between countries because they reflect the particularities of national compilation systems. However, as an ensemble, these policies interact and consequently can have a major impact on the quality of European statistics. Therefore, within the ESS, the national revision policies would not only follow some generic and domain-specific principles but should be also harmonised, where necessary, between Member States and between statistical processes.

Chapter 1 of the ESS Guidelines on revision policy for the PEEIs makes recommendations on how Member States can:

- establish their national revision policy and domain-specific revision policies;
- ensure consistency of domain-specific revision policies across domains and countries;
- maintain the stability of revision policies over time;
- disseminate information on the general and domain-specific revision policies.

When a Member State chooses the best alternative for its revision policy, it must ensure that:

- It adopts a public general revision policy that is applicable to all statistics and fully compliant with the general principles.
- It adopts a domain-specific revision policy that:
 - is compliant with the general one and agreed at ESS level, including at least on the following elements: frequency of revision, timing of revision, reasons for revision, depth, revision length, communication issues, link between revision policy and revision analysis;
 - ensures the maximum degree of consistency across countries and domains, without contradicting the aim of accuracy at national level.
- The revision policies are stable over time at ESS level. When changes are required (new legal acts, new definitions, adoption of new sources, new methods of estimation, innovation, etc.), they should be coordinated as far as possible at ESS level and announced in advance. Important changes made at Member State level and necessary to foster accuracy, reduce the reporting burden or meet rules under national laws should also be announced in advance.
- Documents describing general and specific revision policy are easily available on the agencies' websites and follow standardised rules. They should be accessible from a wide variety of sources, e.g. through links in press releases, publications and the metadata of statistical databases.

Chapters 4 to 8 of this document summarise the detailed recommendations for carrying out revisions of ESA 2010 data. This chapter proposes a checklist for self-assessment of the national revision policy. Since Member States choose different ways of describing their national revision policies, the checklist includes only generic questions that focus on adherence to recommendations, the scope of national revision policy, elements to be included and presentation. This checklist may be used to help either draft or review the policy.

Checklist for self-assessment of the national revision policy covering ESA 2010 data

- Is the policy part of a harmonised national policy for national accounts and BOP?
- Is it comprehensive for all ESA 2010 data?
- Is the policy agreed by all concerned national statistical compilers?
- Is the policy documented, well-explained and easily accessible by all users?
- Is the policy detailed enough to be easily followed by staff members when they plan, carry out and analyse revisions, and disseminate the results of the revisions and the related information?
- Does it explain the balance between accuracy, timeliness and consistency?
- Does it include provisions for frequency of revision, timing of revision and depth of revision for all ESA 2010 data?
- Does it follow the recommendations for benchmark revisions of ESA 2010 data?
- Does it follow the recommendations for routine revisions of ESA 2010 data?
- What is the overall level of adherence to HERP?
- Does it explain the reasons for which any recommendation is not or is only partially followed?
- Does it include provisions for consistency: with ESA 2010 concepts and definitions; between ESA 2010 data; between national accounts and BOP; with other ESS compilers, including Eurostat; with compilers from the European System of National Central Banks?
- Does it include provisions for communicating benchmark and major revisions to users before and after their publication?
- Does it include provisions for correcting significant errors through revisions?
- Does it ensure that information on revision policy and practice is included and maintained up-to-date in the metadata?
- Does it ensure that press releases include information on revisions?
- Does it provide that a revision analysis is carried out periodically for key macro-economic indicators defined by ESA 2010?
- Is there a link between the development of the revision policy and the results of the revision analysis?
- Is the policy stable over time?

9.2. Planning of revisions

The revision planning phase is fundamental to ensure that the principles of the revision policy are transformed into a practical process. The key elements of this phase are as follows:

- *Governance* — the stakeholders involved in the production of national accounts data do not only ensure that the revision policy is kept up-to-date but, most importantly, they guarantee the smooth and seamless integration of all stages of the revision process.
- *Advance dissemination of qualitative information* — the advance dissemination of anticipated revisions and improvements (not necessarily in quantitative terms) increases the transparency of the process and allows experienced users to assess the impact of revisions. In addition, it allows users to understand the cycle of methodological revisions.
- *Release calendar* — this provides an overview of which sets of statistics are subject to revision and describes the respective revision cycles by means of a standardised structure without necessarily giving exact dates. The release calendar helps users understand the outline of the revision cycle by getting a clear picture of the timeline of the publication of preliminary, provisional and final results. It also describes the periods for which revisions are made.

Governance

Routine revisions

Istat

Istat in principle follows the general recommendations of the HERP for both routine and benchmark revisions. In particular, it adopts a specific revision policy for quarterly national accounts. This policy is fully aligned with the European recommendations on the cycle of routine revisions.

Italy plans to achieve full consistency of its national accounts with data in other domains in the near future. More specifically, *Istat* and the *Bank of Italy* are working on full adoption of the harmonised revision policy, with particular attention paid to the aspects related to the depth of routine revisions. Concerning BOP statistics, the Bank of Italy fully complies with the HERP, although it did not reach the maximum allowed revision depth in all revision windows. BOP statistics minimise the depth of routine revisions taking place in the 2nd and 4th quarters, and extend the revision depth in the 1st and 3rd quarters. In contrast, *Istat*, fully in line with HERP, adopts the maximum allowed revision depth in each quarter.

The two institutions are working together to align their practices related to the depth of revisions. They adopt a common calendar for both the exchange and the dissemination of data revised due to benchmark revisions.

Recently, the Bank of Italy announced that the updated ECB Guideline 2011/23 on external statistics will be adopted in March 2021. The update will involve introducing more details in external statistics: by instrument, institutional sector, currency of denomination and counterpart country. The update of the ECB Guideline may require the production of historical data for BOP/IIP, and its transmission to international organisations. In this case, a new common calendar for the exchange of revised data between the Bank of Italy and *Istat* will be defined.

Benchmark revisions

Statistics Netherlands

From the second half of 2016 to the first half of 2018, *Statistics Netherlands* has carried out a benchmark revision for the year 2015, exactly 5 years after the previous benchmark and conceptual

revision adopting the ESA 2010. The aim of the revision was to incorporate the latest statistical insights and new data sources into the national accounts as much as possible, and to implement some methodological improvements. These improvements relate to the sectorisation of some holdings and head offices and the registration of merchandising and goods for processing of some multinational corporations. Methodological improvements were also implemented to address all the action points identified by the recent Eurostat GNI-verification mission and the EDP dialogue visit.

A long lasting cooperation project between *Statistics Netherlands* and the *Dutch Central Bank* reached an important milestone with this revision, as it resulted in fully consistent results of the national accounts and the BOP with respect to main aggregates like current account surplus and net wealth vis-à-vis the rest-of-the-world.

The revision was closely monitored by a special project organisation and was characterised by a tight planning schedule. A steering committee was set up with the directors of the two departments involved, 'National accounts' and 'Government Finance and Consumer Prices'. It was supported by the head of the Research and Publication Section of the National Accounts department, who strictly monitored overall progress, evaluated the main and often domain-exceeding projects and kept a close eye on the impact on key indicators. The impact of each project on key indicators, for example GDP and government surplus, was tracked from the beginning. The steering committee was supported by a coordination group consisting of the project leaders of the main domains (SUT/IO, sector accounts, government accounts and labour accounts) and a project leader for the time-series. This group closely monitored progress and evaluated the results and quality of all the projects. Other senior experts were also involved in the quality assurance for each project.

The revision planning covered a period of almost two years. Starting from the second half of 2016 to mid-2017, more than 150 revision projects were carried out, some rather small but others with substantial impact on the key indicators. In the second half of 2017, the results were incorporated into the various systems and the figures were balanced and finalised in January 2018. The benchmark revision was a major milestone yielding consistent and coherent level estimates for the year 2015 for all the main domains, including SUTs, sector accounts, government accounts and labour accounts.

Advance dissemination of qualitative information on revisions

Office for National Statistics (ONS)

Every year, the ONS updates the sources and methods for the United Kingdom's (UK's) national accounts and publishes the latest estimates (including revisions to past periods) in the annual Blue Book. A regular part of these updates is annual supply and use balancing, which brings together detailed data on the three approaches to measuring GDP (production, income and expenditure) and balances them by product. In addition, volume series are updated so their reference and base years are moved forward. In the UK, the national accounts and BOP are fully integrated and coherent; therefore, a parallel process is followed for the BOP.

The scope of future planned revisions is regularly announced by the ONS in advance of the annual reassessment of data. These announcements are made in the form of articles on the ONS website, which describe the nature of any revisions that are planned outside of the regular process, the main methodological, as well as time-span of revisions.

As an example, on 4 December 2017, the ONS published an article on 'Latest developments to UK National Accounts and Balance of Payments — changes to be implemented for Blue Book and Pink Book 2018' providing detailed information on the publication of the 'UK National Accounts, The Blue

Book: 2018 edition', that was expected to be published on 31 July 2018 ⁽³⁰⁾. The article provided detailed explanations for each of the areas to which the ONS would bring improvements with the publication of their 2018 data: new trade processing systems, pensions, net spread earnings, recoding of gross fixed capital formation in telecommunications equipment and utilising new data sources.

Figure 9.1: ONS roadmap for the publication of 2018 data published in December 2017

Table 1: Provisional publication schedule for Blue Book and Pink Book 2018

Content of article	Provisional date of publication
Impact of Blue Book 2018 changes on annual current price gross domestic product estimates, 1997 to 2016	Mar-18
Impact of Blue Book 2018 changes on GDP current price and chained volume measure annual and quarterly estimates: 1997 to 2016 and associated methods articles	Apr-18
Detailed assessment of changes to Sector and Financial Accounts, 1997 to 2016	May-18
Detailed assessment of changes to Balance of Payments annual estimates, 1997 to 2016	May-18
Publication of Blue Book and Pink Book 2018 consistent Quarterly National Accounts, Quarterly Sector Accounts and Balance of Payments	29-Jun-18
Alignment between public sector finances and national accounts article: June 2018	29-Jun-18
Publication of Blue Book 2018 and Pink Book 2018	31-Jul-18

Release calendar

Routine revisions

Istat

Istat releases annual national accounts data twice a year: the first time is at the end of February and the second at the end of September. The September release takes into account the statistical sources that become available after February. The main data sources used to estimate national accounts are provided in time for the GNI own resources transmission that takes place on 22 September. Normally, there are no revisions between the GNI transmission and the ESA transmission that is due by 30 September.

Two further revision windows are opened in the 2nd and the 3rd quarter. The former is used for possible update of general government data between the beginning of March and the closing of the EDP notification and the latter for the GNI and EDP processes. However, in the last four years, these options have been used just two times (in 2015 and 2018), in both cases for revisions of quarterly national accounts in April.

For quarterly data, Istat publishes on its website the release calendar for the whole sequence of revisions of any given quarter.

⁽³⁰⁾<https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/articles/nationalaccountsarticles/latestdevelopmentstonationalaccountsandbalanceofpaymentschangestobeimplementedforbluebook2018andpinkbook2018>

Figure 9.2: Snapshot taken from Istat's website on the revision process of quarterly data

Processo di revisione ordinaria dei Conti trimestrali dei settori Istituzionali e delle Amministrazioni Pubbliche
DATI GREZZI e DESTAGIONALIZZATI *

Periodo di riferimento		Anno A				
		I trim	II trim	III trim	IV trim	
Mese e anno di pubblicazione	Anno A	Giugno	P			
		Settembre	R1	P		
		Dicembre	R2	R1	P	
	anno A+1	Marzo	R3	R2	R1	P
		Giugno	R4	R3	R2	R1
		Settembre	R5	R4	R3	R2
	anno A+2	Dicembre	R6	R5	R4	R3
		Marzo	R7	R6	R5	R4
		Giugno	R8	R7	R6	R5
	anno A+3	Settembre	R9	R8	R7	R6
		Dicembre	R10	R9	R8	R7
		Marzo	R11	R10	R9	R8
	anno A+4	Giugno	R12	R11	R10	R9
		Settembre	R13	R12	R11	R10
		Dicembre	R14	R13	R12	R11
	anno A+4	Marzo	R15	R14	R13	R12
		Giugno	R16	R15	R14	R13
		Settembre	R17	R16	R15	R14
	Dicembre	R18	R17	R16	R15	

*AMMINISTRAZIONI PUBBLICHE SOLO DATI GREZZI

- Prima stima (P)
- Revisione nell'anno in corso (Rt)
- Revisione negli anni successivi (Rt)
- Revisione per recepimento del vincolo annuo (Rt)
- Revisione per il recepimento della revisione dei vincoli annui (Rt)

Benchmark revisions

Statistics Netherlands

Although *Statistics Netherlands* follows HERP guidelines in terms of benchmark years chosen (those ending with a '0' or '5'), the last benchmark revisions were actually published a year earlier than recommended. This was because the Dutch structural business statistics, the single most important data source, became available with a time lag of just one year (one-and-a half years is the most common in the EU). The publication of the final annual national accounts estimates could therefore also be shortened by one year. Furthermore, although the HERP recommends publication by the end of September, which is the transmission deadline for most of annual tables, the Dutch National Accounts are traditionally already published by the end of June. This early publication of results is part of the preparation process for the third Tuesday in September (the day is called 'Prinsjesdag' in Dutch), when the budgetary plans for the year ahead are presented in parliament and the political debate takes place. To prepare for this day, the government needs new economic forecasts from the Dutch Bureau of Economic Policy Analysis, which are based on the June figures of national accounts disseminated by Statistics Netherlands. A publication of national accounts at the end of September would be too late for this important national need.

Non-scheduled revisions

Statistics Sweden

The *errors detected in the compilation of national accounts* are managed in accordance with Statistics Sweden's processes for error management. The measures taken depend on the size and importance of the error.

There may be other reasons for non-scheduled revisions. National accounts statistics may be subject to revisions as a result of non-scheduled revision of primary statistics. Consequently, a final year or quarter estimate may be subject to revisions, in which case a special decision to carry out revisions is taken.

All significant non-scheduled revisions are announced on the www.scb.se website at least two weeks before the dissemination of the revised statistics. The website announcement includes information on the scope and depth of the revisions and the reasons for them being carried out.

9.3. Implementation of revisions

Routine revisions should result in stable depth of backward revisions for each published edition of annual and quarterly national accounts. The publication of preliminary, provisional and final data should accurately reflect the release calendar of the national compiler. Most national compilers use the term '*preliminary data*' to describe the first released version of a series and '*provisional data*' to describe subsequent versions prior to final amendment. The two terms are often used interchangeably, but users should not have any problem understanding that data labelled either 'preliminary' or 'provisional' are subject to revision, as long as the data compiler clearly highlights this in the release.

Routine revisions

Istat's practice for quarterly and annual data

For annual accounts, if no significant adjustment to the year N-4 is deemed necessary, Istat publishes a definitive estimate for year N-3 in the release of February of year N. A provisional estimate concerns year N-2 and a first estimate year N-1, both based on the simplified approach adopted for the compilation of estimates of the quarterly national accounts. Then, in the September release, data for both years, N-2 and N-1, are revised drawing upon the statistical sources that have become available and updating the February estimate based on the quarterly national accounts.

Main sources of information are subject to update every year. In particular, the September release estimates for reference year N-2 includes final data from the system of structural business statistics (called Frame-SBS) based on a census system of economic reporting and integrating both administrative and survey sources. The availability of such data makes the estimates very close to final ones, based on the maximum detail of statistical sources. In particular, it makes it possible to include in the accounts a final measure of underreporting of value added, based on detailed firm-level data and individual information concerning undeclared employment.

As regards general government accounts, the revision approach for data issued in September is the following: the estimate for year N-3 is almost definitive, the one for year N-2 is semi-definitive since part of the final sources are missing, and the one for year N-1 is provisional since it relies mainly on cash-based sources. The February release benefits from a revised data source (the final state annual budget) that provides accrual information for the main sub-sector of Italian general government for year N-1. The delimitation of the general government sector, at both central and local level, is updated early since it is based on a yearly comprehensive review of the set of units

potentially belonging to this sector.

Regional accounts are released once a year in December. The release is definitive for year N-3, semi-definitive for year N-2, and provisional for year N-1. This latter estimate is compiled according to a simplified approach based mainly on labour input data, as well as on a few other available indicators. It refers only to the NUTS 2 level. The estimate for year N-2 is made according to the same sources and methods used for the final year and for the September release of estimates at national level. The above include results of the system information on the economic results of companies (Frame SBS database).

Financial accounts, compiled by the Bank of Italy, are currently not fully in line with HERP, neither for annual nor for quarterly accounts. The most important revisions of financial accounts relate to the previous two years and occur in the first compilation round, after the Bank of Italy's Annual Report is released; this round corresponds to the 1st quarter release (completed in June).

The principal data sources for the production of annual financial accounts are: (1) BOP statistics; (2) quarterly financial accounts for general government; (3) banking statistics; and (4) administrative sources such as tax records and corporate balance sheet data from the Business Register. Revisions of government data occur more frequently but any and all revisions are incorporated annually during the compilation phase of production. Revisions are generally incorporated into the quarterly financial accounts as soon as they occur or become available. Explanations relating to significant revisions are usually communicated to users at the time of publication.

BOP data and national accounts are usually consistent in the release of February for year N-3, at annual and quarterly level.

Some satellite accounts, even if consistent with annual national accounts, are adjusted annually for the whole time series because of the changes in the external references and sources responding to different regulations. For example, under Regulation (EU) No 691/2011, air emissions accounts are reconciled with the official communication to the Inter-governmental Panel on Climate Change. Other satellite accounts, for example the health account, are released once a year consistently with the February release of annual accounts (in accordance with Commission Regulation (EU) 359/2015) but are not updated in September. Due to this practice, there are limited inconsistencies across domains (for around 5 months) due to different calendars.

For quarterly national accounts, Istat applies the rule of 'four years', also to the releases of the 1st, 2nd and 4th quarter. In the 3rd quarter, the entire time series is revised. In this approach, 15 quarters are revised in the 1st quarter, 16 in the 2nd quarter, an unlimited number in the 3rd quarter, and 18 in the 4th quarter.

The depth of revision by quarter and type of estimate is shown in Table 9.1.

Table 9.1: The Italian revision policy for routine revisions in terms of depth of revision for quarter and type of estimate

Quarter of revision	Last revised reference quarter	Preliminary estimate of GDP released at T+30 days	Full quarterly national accounts estimate released at T+60 days	Full quarterly national accounts estimate released at T+90 days
2 nd	Q1	16	16	-
3 rd	Q2	17	17	the whole time series
4 th	Q3	18	18	-
1 st	Q4	15	15	-

SCB's practice for quarterly and annual data

National accounts main aggregates, annual & quarterly, ESA 2010 transmission programme

Estimate of Q1 of year N

Q1 to Q4 of the previous year N-1 may be subject to revisions.

A new reference year is used. This leads to changes in the volume growth rate as part of the GDP estimates.

Preliminary estimate of Q2 of year N

No previous periods will be revised in this publication.

Estimate of Q2 of year N and annual estimate for the year N-2

The previous quarters of year N may be subject to revisions.

The quarters of years N-2 and N-1 may be subject to revisions due to the final calculations for annual estimate for year N-2.

The quarters of years N-4 and N-3 may be subject to revisions to adjust the figures to the new level for year N-2.

The entire time series may be revised due to changes that affect the EDP.

Estimate of Q3 of year N

Previous quarters of year N may be subject to revisions.

Preliminary annual statistics on government consumption, production and saving are available. All quarters for the reference period N-1 may, therefore, be subject to revisions.

New statistics from BOP on return/direct investment for the years N-2 and N-1 are available. The quarters of years N-1 and N-2 may, therefore, be subject to revisions.

Estimate of Q4 of year N

Previous quarters of year N are subject to revisions. The quarters of the year N-1 may be subject to revisions if large revisions in the BOP statistics or in the outcome of tax assessment have occurred.

Financial accounts and government financial statistics

Estimate of Q1 of year N

Q1 to Q4 of the previous year N-1 may be subject to revisions.

Estimate of Q2 of year N and the annual calculation of the year N-1

The entire time series may be subject to revisions. Please see also the description of benchmark revisions.

Estimate of Q3 of year N

The previous quarters of year N may be subject to revisions.

The quarters of year N-1 may be subject to revisions if new statistics on government saving are available.

The quarters of years N-2 and N-1 may be subject to revisions if new statistics from the balance of payment on direct investment are available.

Estimate of Q4 of year N

The previous quarters of year N may be subject to revisions.

The quarters of year N-1 may be revised if large revisions of the BOP statistics have occurred.

Variables that affect the estimates of the EDP may be revised for the entire time series. In addition,

new information and methods that enhance the statistical estimates may be used for the entire time series.

Table 9.2: The Swedish revision policy for routine and non-scheduled revisions

Year N	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
Quarterly and annual data				
Main aggregates, non-financial sector accounts				
Latest quarter available	Year N-1, Q4	Year N, Q1	Q2 — flash estimate Year N, Q2 Year N-2 final estimate	Year N, Q3
Depth of revisions (max)	7 quarters (Year N-1)*	4 quarters (Year N-1)	unlimited (<i>September</i>)	10 quarters (Year N-1, N-2)
* Non-financial sector accounts	unlimited (due to EDP)			
New reference year (N-1)	Yes			
Seasonally and calendar adjusted data	entire time series	entire time series	entire time series	entire time series
Deadlines	28/02 (29/02)	31/05	31/08 (flash estimate); 30/09	30/11
Non-scheduled revisions	entire time series	entire time series	entire time series	entire time series
Financial accounts, government finance statistics				
Latest quarter available	Year N-1, Q4	Year N, Q1	Year N, Q2 Year N-1 final estimate	Year N, Q3
Depth of revisions (max)	7 quarters (Year N-1), unlimited due to EDP	4 quarters (Year N-1)	unlimited	10 quarters (Year N-1, N-2)
Deadlines	31/03	30/06	30/09	31/12
Non-scheduled revisions	entire time series	entire time series	entire time series	entire time series

Benchmark revisions

Statistics Netherlands

The benchmark revision carried out by Statistics Netherlands in 2018 encompassed all the domains of the national accounts and covered all the tables of the ESA 2010 TP, including time-series from 1995 onwards.

The revision has led to new results for the key indicators, although the adjustments are generally small: GDP has been revised upwards by 1.0 % to 690.0 billion euros for 2015, GNI by 1.6 % to 690.5 billion, government debt (the EMU debt as a percentage of GDP) by 0.2 percentage points to 64.8 %, and the EMU surplus by 0.1 percentage point to -2.0 %. The revision adjustments for these key indicators were quite small.

Subsequently, the revised quarterly data were aligned with the new 2015 totals through a process of manual and mathematical balancing. Work on the regular annual compilation cycle resulted in final

estimates for the year 2016 and preliminary estimates for the year 2017 and realigned the quarterly data with these new annual totals.

At the same time, work on the time-series commenced, starting with the annual data back to 1995 and subsequently followed by the quarterly data. The compilation of the time-series was done on a more aggregated level than the regular cycle, but was detailed enough to fulfil the requirements of the ESA 2010 TP. Backward estimates of the revision project were added as separate 'layers' to the pre-revision data, bigger discrepancies were balanced manually and smaller ones were balanced mathematically. Graphics were extensively used to analyse the results.

Detailed SUTs and IOTs have also been developed for 2015 and subsequent years, but they were not revised for previous years. This was considered too laborious in relation to demand for the data, and it would have also delayed the overall construction of the time-series.

The benchmark revision completed by Statistics Netherlands resulted in full consistency within and between the domains.

Istat

Benchmark revisions are carried out at non-regular intervals but the plan now is to stick to a 5-year revision cycle. Benchmark revisions are carried out mainly because of methodological changes in the processing of basic data or extraordinary changes due to classification and definition of variables. In general, major revisions are not determined by one single cause but by a combination of them. Benchmark revisions by definition apply to the whole time series of available estimates.

Generally speaking, *Istat* restricts important changes in sources and estimation methods to benchmark years, in order to avoid discontinuity in the time series of aggregates. For example, the series transmitted in September 2014 included several modifications. The transition to the new ESA regulation and manual provided the opportunity to introduce innovations in measurement methods and new statistical sources. In particular, the benchmark year 2011 was the most recent period for which the maximum amount of updated information was available. For this year, nearly all aspects of the compilation of Italian national accounts were checked and modified in order to improve both data sources and compilation methods. As a result, significant revisions were introduced for many economic aggregates (GDP, value added, employment, etc.). Many of these innovations were based on the use of updated census data and on new sources of data.

It must also be emphasised that, in 2014, a new manual for compiling the BOP/IIP (BPM6) was introduced. This meant complete consistency of concepts between ESA 2010 and BPM6. As a consequence, any revision in the BOP statistics has also been included in the revision of national accounts. This result represents a remarkable improvement with respect to the past, as this was the first time that there was full consistency between the two domains.

Major revisions are communicated well in advance. For example, in January 2014, the revision policy carried out due to the transition from ESA 95 to ESA 2010 was described in a dedicated section of the *Istat* website (<http://www.istat.it/en/archive/110843>). Users were informed about forthcoming major revisions in advance and were warned that important changes in the entire set of time series were expected. Documents were provided to help users better understand the elements of this major revision, the depth of time-series revisions, their impact and the timing of data dissemination. Moreover, the website was regularly updated with specific documentation, at national and international level, until the completion of ESA 2010 data dissemination in September 2014.

The next major revision is planned for September 2019. It will be mainly characterised by the use of new sources, the update of some of the structural information underlying the previous benchmark estimate and a revised extrapolation approach. Of course, Eurostat's recommendations following the most recent GNI verification process will be fully implemented.

9.4. Analysis and dissemination of results

To ensure users' long-term confidence, it is essential to make the revision procedure transparent. The following elements are key to this:

- *Revision analysis* — after a revision, a revision analysis is carried out. It provides users with important information on the robustness of first published data. It also enables producers to better understand the statistical compilation process, possibly facilitating the identification of problems and/or improvements that could be made.
- *Dissemination of results* — the revised data and the results of the subsequent analysis are published in a transparent and user-friendly way through press releases, on NSI websites, in articles, etc.

Routine revisions

Istat & the Bank of Italy

For the dissemination of information related to revisions, Istat follows the fundamental principles on the quality of processes and statistical products.

In all press releases, there is a section devoted to methodology, with reference to the adopted revision policy ⁽³¹⁾. Another section explains and provides analysis of revisions with respect to previous releases.

For quarterly national accounts and quarterly sectoral accounts, a new section dedicated to revisions was published on Istat's website at end of June 2017 ⁽³²⁾. For key indicators, this section provides useful information about revisions and their classification. The revision policy, routine revisions and major revisions are also reported in the GNI quality report transmitted to Eurostat every year.

Consistently with the principle of transparency, Istat produces and publishes revision triangles (real time database), for the main economic short-term indicators, including quarterly national accounts. In these, the different vintages of revised data released over time are collected in tabular form. For each economic indicator, the row shows the time series released at a certain date (vintage) and the column shows the history of estimates related to that indicator.

Information on revision measures and revision policy is also disseminated in press releases on short-term indicators. Routine revisions are systematically presented in the press releases, while information on any non-scheduled revision is included in an information note added to the press release.

For quarterly national accounts, a dedicated section of the Istat website provides a revision information sheet and the calendar of the complete cycle of ordinary revisions. Another information sheet provides information on the revision analysis, including the main quality indicators and a graphical representation of revisions.

Furthermore, the Bank of Italy follows a specific communication policy on revisions. Explanations relating to significant revisions are usually communicated to users at the time of publication on the Bank of Italy's website. The nature and occurrence of routine revisions, as well as information on any exceptional revisions (for example those carried out as a result of methodological changes), are communicated to users along with the publication of the data itself.

⁽³¹⁾ <http://www.istat.it/it/conti-nazionali>

⁽³²⁾ <http://www.istat.it/en/economic-trends>

ONS

Revisions to the main series presented within national accounts statistical bulletins are published in tables. The bulletin also contains or link to tables, which provide information to enable users to put these revisions into an historical context. Revisions triangles supporting this information are also published on the ONS website, to allow users to analyse past revisions for themselves.

The publication of data is accompanied by the publication of articles that discuss the impact of the pre-announced (methodological) changes. Articles on selected topics related to the revision analysis of national accounts may also be published on the ONS website or in scientific journals.

When there are exceptional causes of revisions, such as changes to the industrial classification or international accounting standards, a specific communication plan is developed. This might consist of a series of articles and seminars on related concepts, methodology and probable effects. This was the case for the Blue Book 2014 when ESA 2010 was implemented across the EU.

Benchmark revisions

Statistics Netherlands

Following the 2018 benchmark revision, *Statistics Netherlands* published the new level estimates for the year 2015 on 24 May 2018. The press release contained the results for the key indicators, some background and the most important adjustments, the planning schedule for the remaining activities and a reference to the more detailed report with descriptions and figures. Some key users received the information (under embargo) one day before publication. On 22 June 2018, the complete revised estimates were published, from 1995 onwards to the first reference quarter of 2018. Statistics Netherlands also published explanatory notes to the national accounts 2015 benchmark revision in [Dutch](#) and in [English](#), on 24 May and 20 August 2018 respectively. An updated GNI inventory is scheduled for the beginning of 2019. The regional accounts are set to be published by the end of 2018, in line with the EU requirements.

The timely publication of the time-series is considered a major achievement and an important improvement compared to earlier revisions, where there were sometimes delays of several years in the incorporation of the results of the revision in certain time series.

9.5. Consistency of the accounts

While ensuring the consistency of the accounts and their revision are, in general, two different processes, national compilers aim to achieve good consistency of the produced statistics whenever these are revised. In general, a well-established revision practice should result in almost negligible discrepancies among the domains of the national accounts, while any possible difference should be temporary and adequately explained.

Istat

Ensuring internal data consistency is a priority of Istat, for all tables of the ESA 2010 TP. Coherence within and between tables is constantly verified. Temporary inconsistencies do arise due to different transmission deadlines, but they are minimised by the multiple transmissions of some tables over the course of the year (e.g. T8 is transmitted and disseminated not only at $t + 9$ but also at $t + 3$ to ensure consistency with T1, T2 and T801). At the moment, there are some inconsistencies between

T8 and T6 but Istat is working with the Bank of Italy, responsible for financial statistics, to solve the problem.

Cross-domain consistencies are also a priority. In particular, ensuring data consistency between national accounts and BOP (the latter compiled by the Bank of Italy) is an important goal. In general, there is good coordination of both processes and deadlines, which allows the two organisations to exchange estimates in a way that ensures general data consistency at both annual and quarterly frequencies.

Istat achieves almost full consistency between EDP/GNI data and ESA 2010 data by trying to align its approaches to the two processes as much as possible. In general, different deadlines create a need for revision and re-transmission of the national accounts tables, while data produced for administrative purposes (i.e. to fulfil GNI obligations for EU's own resource purposes) are not reviewed. There have only been a few cases where the inconsistencies due to the need to revise the methodology for some aggregates caused a revision of the whole GNI time series. These revisions were carried out with the agreement of Eurostat.

Eurostat and Member States are currently discussing aspects of ESA 2010 cross-domain consistency in a task force set up by the DMES in June 2018. This work will provide further recommendations to national compilers.

10

Eurostat's revision policy and practices

This chapter presents Eurostat's revision policy and practice in relation to the '*principles for a common revision policy for European Statistics*' defined in the ESS guidelines on revision policy for PEEIs. The principles, which should be applied to data revisions at Eurostat and at ESS level, are structured in two groups: general principles and principles related to the data production process at Eurostat and Member State level. The general principles aim to identify the pillars of the set of principles, defining its scope, limits and main characteristics. The second group includes more operational principles related to the implementation of revision policies at domain level.

10.1. General principles

Principle 1 — General and domain-specific revision policies

Each statistical institution within the ESS defines, communicates and publicly releases well-documented general revision policies and domain-specific ones applicable to the European statistics under its responsibility.

For national accounts, Eurostat supports and promotes the HERP principles for both routine and benchmark revisions.

Detailed documentation on the policies applied is published on Eurostat's website, as well as on the European Commission's 'Communication and Information Resource Centre for Administrations, Businesses and Citizens (CIRCABC)'.

Eurostat monitors the development of revision policies at national level.

Detailed information on domain-specific revision policies both at national and Eurostat level is included in the SIMS metadata.

Principle 2 — Consistency and stability of domain-specific revision policies

Domain-specific revision policies should be kept consistent across statistical domains and countries as far as possible and stable over a sufficiently long time period.

Eurostat discusses and agrees the revision policy and practices to be applied to national accounts

with Member States:

Quality reporting requires that the following information on data revisions is provided:

- in the framework of the appropriate fora at technical level, i.e. the NAWG, the EDP Statistics Working Group and ad-hoc task forces;
- at governance level, i.e. in DMES meetings and in advisory bodies such as the CMFB.

Any changes or updates to the agreed policies are developed and agreed within these technical and governance fora. Eurostat monitors the consistency and stability of the revision policies applied by Member States through the ESA 2010 quality reporting exercise.

Principle 3 — Communication of revisions

Statistical institutions within the ESS should define a common strategy for each statistical domain to communicate qualitative and quantitative information on data revisions of European statistics.

Routine revisions are normally realised according to the deadlines specified in the ESA 2010 TP. However, in certain cases, countries revise data that have already been transmitted to Eurostat. The ESA 2010 TP requires that these revised data must be transmitted to the Commission (Eurostat) no later than the day they are published by the national compiler. The data validation process may trigger further revisions to Member States' data and, consequently, to euro indicators. Information on the revision of euro indicators is included in the new releases that are published according to Eurostat's release calendar for the current calendar year ⁽³³⁾.

Eurostat takes specific communication actions well in advance of major/benchmark revisions such as the transition to the ESA 2010 manual or the benchmark revision for 2019. These actions include not only the publication of articles and news releases, but also statistical working papers analysing the impact of revisions, as well as meetings with major stakeholders and users.

Communication of non-scheduled major revisions is coordinated bilaterally with the corresponding Member State(s).

10.2. Principles related to the data production process

Principle 4 — Routine and annual revisions

Routine and annual revisions should be published in the framework of well-defined, synchronised and regularly updated release/revision calendars at national and European level. Releases of European and national data aggregates should be synchronised as far as possible.

For routine revisions, Eurostat applies the HERP principles and guidelines on routine revisions (see Chapter 6). Additional guidelines are provided for national accounts domains not covered by HERP (see Chapter 7).

Progress on implementing the HERP recommendations on routine revisions is monitored by the NAWG, the DMES and the CMFB.

⁽³³⁾ <http://ec.europa.eu/eurostat/news/release-calendar>

Principle 5 — Major revisions

Major revisions should only take place in larger intervals. They should be pre-announced, backwards implemented and coordinated across statistical domains and institutions.

For major/benchmark revisions, Eurostat applies the HERP principles and guidelines on benchmark revisions (see Chapter 5).

Progress on implementing the guidelines on benchmark revisions is monitored by the NAWG, the DMES and the CMFB.

Principle 6 — Non-scheduled revisions

The number of non-scheduled revisions should be reduced over time to only occur in cases of errors and unforeseeable accidents in the production process. Corrections should then be made without waiting for scheduled revisions. They should be well explained and communicated.

Non-scheduled revisions are coordinated between Eurostat and the Member State concerned.

Principle 7 — Definition of domain-specific revision policies

Domain-specific revision policies should rely on sound and homogenous methodological choices covering e.g. scheduling of revisions, possible use of thresholds, length, depth, and seasonal adjustment where applicable.

Eurostat supports and promotes the use of HERP principles and guidelines for all national accounts domains and in all EU Member States.

HERP has been designed for both routine and benchmark revisions while taking into account the particularities of all domains.

Principle 8 — Data vintages and monitoring of revisions

As far as appropriate, each statistical institution within the ESS carries out and disseminates regular revision analysis at statistical domain level. For this purpose, there should be adequate vintage databases consistent with release/revision calendars. They should be well maintained and their information disseminated.

The availability of historical information on revisions and revision analysis of Member State data varies across the ESA 2010 domains. This is also the case for European aggregates.

Eurostat is developing a consolidation environment for the majority of ESA 2010 data. This will make it possible to maintain and manage all historical information at the highest available level of breakdown for both annual and infra-annual statistics. This in turn will make it possible to harmonise monitoring of the revision process for all domains covered, as well as to produce revision analyses in a systematic and harmonised way.

11

Quality assessment of revision policy and practice

This chapter discusses how national revision policies and practices are being assessed within the context of the ESA 2010 quality reporting and assessment.

The first section provides an overview of the quality reporting and assessment process and highlights what information on revisions is being reported, compiled and analysed. The second section focuses on the quality assessment of the national revision policies, while the third presents the assessment of the national revision practices. The assessment of the policies is based only on qualitative judgment, while the assessment of the practices entails a qualitative evaluation and a quantitative assessment of revision indicators.

11.1. Overview of the quality reporting and assessment of ESA 2010 data

Quality reporting and assessment of ESA 2010 data under Article 4, Regulation (EU) No 549/2013 was introduced with Commission Implementing Regulation (EU) 2016/2304 of 19 December 2016. This means that now data transmitted by Member States within one calendar year are subject to quality reporting and assessment during the following year. The introduction of quality reporting exercises started in 2017 and this process will be finalised by 2021.

Quality reporting requires that the following information on data revisions is provided:

- metadata on national data revision policy containing links to existing metadata published nationally and brief information about benchmark revisions and/or major routine revisions and their impacts on the GDP (since 2017);
- revision rates for key variables: quarterly data (2 variables) and annual data (17 variables) (since 2019);
- revision rates for key variables: quarterly data (4 variables) (since 2021).

Member States provide metadata type information and update it annually. Eurostat pre-calculates revision rates indicators for the variables shown in Table 11.1. These are checked and commented on by Member States. The indicators are calculated based on the most recent vintage of Member States' data published on Eurostat's website and cover reference periods of the last five years. The revision rates for the key quarterly variables assess the revisions between the first and the latest transmissions and the average revision rate in subsequent transmissions since the first transmission for the available quarters of the latest 5 reference years. The average revision rates for the key annual variables evaluate the subsequent transmissions for the latest 5 years since the first data transmission.

Table 11.1: Overview of the series requested for quality reporting

Annual data
National accounts main aggregates
Gross Domestic Product (B1GQ, T0101A), current prices
Gross Domestic Product (B1GQ, T0101A), volumes
Gross value added (B1G, T0101A), current prices
Compensation of employees (D1, T0103A), current prices
Gross Operating Surplus and Mixed Income (B2A3G, T0103A), current prices
Household & Non-profit institutions serving households (NPISH) final consumption expenditure (P31_S1M, T0102A), current prices
Government final consumption expenditure (P31_S13, T0102A), current prices
Gross fixed capital formation (P51G, T0102A), current prices
Exports (P6, T0102A), current prices
Imports (P7, T0102A), current prices
Employment (EMP, T0111A), thousands of persons
Employees (EMP, T0111A), thousands of persons
Government finance statistics
Total expenditure of General Government (OTE_S13, T0200), current prices
Total revenue of General Government (OTR_S13, T0200), current prices
Financial accounts
Total financial sector liabilities, non-consolidated (T720), current prices
Debt of NFCs, consolidated (T710), current prices
Debt of households and NPISH, consolidated (T710), current prices
Regional accounts (*)
Gross Value Added (B1G), current prices
Employment (EMP), persons
Compensation of Employees (D1), current prices
Net disposable income of households (B6N), current prices
Quarterly data
National accounts main aggregates
Seasonally and calendar adjusted gross domestic product (B1GQ) quarter-on-quarter volume growth rate
Seasonally adjusted total employment (EMP) quarter-on-quarter volume growth rate
Non-financial sector accounts
Non-seasonally adjusted gross disposable income of households and NPISH (B6G), current prices, S1M
Non-seasonally adjusted final consumption expenditure by households and NPISH (P31), current prices, S1M
Non-seasonally adjusted gross value added of non-financial corporations (B1G), current prices, S11
Non-seasonally adjusted gross fixed capital formation of non-financial corporations (P51G), current prices, S11

(*) The indicator will be calculated for NUTS 2 regions which have not experienced changes due to amendments to the NUTS regulation during the period under analysis.

The aim of the quality reporting and assessment is to collect quantitative and qualitative information on data revisions for the purposes of analysing and improving the data revision policies and practices, where necessary, and informing users about them. Considering that national revision policies are country specific even if they adhere to HERP principles and that data revisions are a common statistical practice carried out to improve data quality, the quality reporting and assessment of data revisions are tailored to take into account the specificities of national implementation; they do not aim to restrict countries in revising their data.

11.2. Quality assessment of the revision policy

Principle 8 of the European Statistics Code of Practice requires that appropriate statistical procedures underpin quality statistics, from data collection to data validation. In line with this, revisions should follow standard, well-established and transparent procedures. To show that they have met this requirement, Member States provide metadata on their national data revision policy, with links to existing metadata published nationally.

The following aspects are examined in metadata published nationally:

- availability of documented and disseminated information on the public revision policy;
- completeness and clarity of the national revision policy;
- alignment of the national revision policy with HERP recommendations;
- correspondence of the practice of transmitting data to Eurostat with the provisions of national revision policy.

11.3. Quality assessment of the revision practice

Qualitative assessment of implemented revisions

Two principles of the European Statistics Code of Practice need to be considered when implementing data revisions, namely:

- Principle 6 on Impartiality and Objectivity, which requires that advance notice is given on major revisions or changes in methodologies;
- Principle 8 on Appropriate Statistical Procedures, which requires that revisions follow standard, well-established and transparent procedures.

Eurostat maintains regular contacts with Member States and receives regular information on planned and completed revisions. Within the quality reporting, Eurostat also collects metadata with brief information on benchmark revisions and/or major routine revisions carried out during the preceding year, and their impact on GDP.

These metadata are assessed for the following aspects:

- correspondence between implemented revisions and provided metadata;
- completeness and clarity of information on implemented revisions;
- availability and punctuality of transmission of advanced notifications on benchmark and major routine revisions and clarity of the assessed impact on GDP;
- punctuality of transmission of the revised data to Eurostat in cases where the revisions had not been carried out close to the ESA 2010 TP deadlines;
- consistent revisions across the ESA 2010 domains;
- availability of publicly disseminated information about completed revisions on national websites.

Quantitative assessment of implemented revisions

During the preparatory work on ESA 2010 quality reporting and assessment, Eurostat and Member States agreed to test the revision indicators with volunteer countries. The test exercise took place in the first half of 2018 on a limited set of national accounts main aggregates and NFSA data. Its purpose was to test several revision indicators and choose the most appropriate ones for implementation. This section presents the outcomes of the test exercise and the agreements reached in the follow-up discussions with the NAWG.

Revision indicators

The list of indicators proposed in this section draws from the pool of indicators proposed by different consortia that worked on the quality aspects of revisions. These indicators describe quantitative aspects of the revision practice; caution is needed when using them to describe the qualitative aspects of revisions.

The joint Task Force of the Organisation for Economic Cooperation and Development (OECD) and Eurostat on 'Performing Revisions Analysis for Sub-Annual Economic Statistics' issued recommendations on a set of indicators to be used for revision analyses ⁽³⁴⁾. These recommendations aim to provide a guideline to both users and producers of statistics on how to interpret the results of a revision analysis for economic variables published with a monthly or quarterly frequency.

Based, on these recommendations, the ESS handbook for quality reports (2014 edition) identifies two distinct indicators to be included in the quality reports ⁽³⁵⁾.

Also, the final report of the CMFB Task Force on the alignment of the domain specific quality reports for BOP/IIP statistics suggests using indicators to assess data quality of BOP/IIP statistics wherever feasible ⁽³⁶⁾.

For the revision indicators presented in this section, it is considered that:

- R_0 represents the currently available value;
- a country sends N revisions, with value R_0 being revised to R_k , where $k \leq 1 \leq N$, during a specific period (e.g. production round or calendar year).

Revision Indicator 1 — Ratio of last revised value to initial value

$$RI_1 = \frac{R_1}{R_0} \times \dots \times \frac{R_k}{R_{k-1}} \times \dots \times \frac{R_N}{R_{N-1}} = \prod_1^N \frac{R_k}{R_{k-1}} = \frac{R_N}{R_0}$$

Revision Indicator 1, RI_1 , compares the latest revision R_N with the initial value R_0 . It provides an indication of how much the first estimate has changed.

⁽³⁴⁾ Richard McKenzie and Michela Gamba, 'Interpreting the results of Revision Analyses: Recommended Summary Statistics', contribution to the OECD/Eurostat Task Force on 'Performing Revisions Analysis for Sub-Annual Economic Statistics'.

⁽³⁵⁾ [KS-GQ-15-003-EN-N, ESS handbook for quality reports — 2014 edition](#)

⁽³⁶⁾ Final report of the CMFB Task Force on the alignment of the domain specific quality reports for BOP/IIP statistics (ECB DG-S, Eurostat).

Revision Indicator 2 — Product of all revision ratios with downwards revisions inverted (reciprocal)

$$RI_2 = \prod_{k=1}^N \max\left(\frac{R_k}{R_{k-1}}, \frac{R_{k-1}}{R_k}\right)$$

Revision Indicator 2 is calculated by considering the product of ratios of subsequent revisions. However, the ratio R_k/R_{k-1} is inverted to R_{k-1}/R_k if $R_k < R_{k-1}$ (downwards revision).

Revision Indicator 3 — Average of absolute revision rates

$$RI_3 = \frac{1}{N} \sum_{k=1}^N \left| \frac{R_k - R_{k-1}}{R_{k-1}} \right|$$

Revision Indicator 3 is described as Mean Absolute Percentage Error (MAPE) — average of ratios (MAPE_{average of ratios}) in the final report from the CMFB Task Force on the alignment of the domain-specific quality reports for BOP/IIP statistics.

It is similar to *Revision Indicator 4*. However, *Revision Indicator 4* has a significant advantage over this one. If a single data point of the denominator is close to zero, *Revision Indicator 3* will be artificially magnified; this is not necessarily true for *Revision Indicator 4*.

Revision Indicator 4 — Relative Mean Absolute Revision (RMAR_early) in terms of earlier estimates

$$RI_4 = \frac{\sum_{k=1}^N |R_k - R_{k-1}|}{\sum_{k=0}^{N-1} |R_k|}$$

Revision Indicator 4 is referred to as Relative Mean Absolute Revision (RMAR) in the recommendations of the OECD/Eurostat Task Force on ‘Performing Revisions Analysis for Sub-Annual Economic Statistics’.

This *Revision Indicator* is also described as MAPE — ratio of averages (MAPE_{ratio of averages}) in the final report of the CMFB Task Force on the alignment of the domain-specific quality reports for BOP/IIP statistics.

This indicator is calculated as the mean absolute revision scaled in terms of the size of the earlier estimates. Its advantage resides in the fact that it does not take into account the algebraic signs that could cancel off. Therefore, it is useful as a measure of the robustness of first published estimates, as it can be interpreted as the expected proportion of the first published estimate that is likely to be revised over the revision interval being considered.

However, this indicator does not provide information on the direction of revisions, since it is the *absolute* values of revisions that are considered.

Revision Indicator 5 — Relative Mean Absolute Revision (RMAR_late) in terms of later estimates

$$RI_5 = \frac{\sum_{k=1}^N |R_k - R_{k-1}|}{\sum_{k=1}^N |R_k|}$$

This is one of the indicators that the ESS handbook for quality reports proposes as a quality indicator of revisions.

The difference with *Revision Indicator 4* is that the mean absolute revision is scaled in terms of the size of later estimates rather than earlier estimates.

Revision Indicator 6 — Symmetric Relative Mean Absolute Revision (SRMAR)

$$RI_6 = 2 \times \frac{\sum_{k=1}^N |R_k - R_{k-1}|}{\sum_{k=1}^N (|R_k| + |R_{k-1}|)}$$

Since RMAR/MAPE is an asymmetric indicator, the CMFB also proposes a symmetric indicator based on RMAR, which is referred to as the Symmetric Mean Absolute Percentage Error (SMAPE).

Implementation of the revision indicators in quality reporting

In order to test the revision indicators that will be used in the framework of the ESA 2010 quality reporting, Eurostat and six Member States conducted a pilot exercise in February-April 2018, followed by the NAWG. The qualitative revision indicators chosen based on the results of this pilot study are shown in Table 11.2. Data revisions will be assessed for a possible bias as well.

Table 11.2: Overview of the indicators to be implemented in the ESA 2010 quality reporting

ESA 2010 domain	No of transmissions	Practical selection of vintages	Indicator 1	Indicator 2	Implementation from
National accounts main aggregates — annual data	2 per year ($t + 2$; $t + 9$)	First transmission of new year; last transmission in year	RI5	RI1(*)	2019
National accounts main aggregates — quarterly data	1 per quarter	Closest to $t + 2$	RI1	RI5	2019
Non-financial sector accounts — quarterly data	1 per quarter	Vintage at $t + 120$ days of each calendar quarter	RI1	RI5	2021
Financial accounts — annual data	1 per year	First validated mandatory transmission of each year	RI5	RI1(*)	2019
Regional accounts — annual data	1 per year	First validated mandatory transmission of each year	RI5	RI1(*)	2019

(*) Optional implementation of the indicator.

Annexes

A.1. ESA 2010 transmission programme tables

Table A.1: Overview of the tables included in the ESA 2010 transmission programme

Table No	Subject of the tables	Frequency	Deadline t + months (days where specified)	Period covered
T1	Main aggregates	quarterly	2	1995Q1 onwards
T1	Main aggregates	annual	2/9	1995 onwards
T2	Main aggregates of general government	annual	3/9	1995 onwards
T3	Tables by industry	annual	9/21	1995 onwards
T5	Household final consumption expenditure by purpose	annual	9	1995 onwards
T6	Financial accounts by sector (transactions)	annual	9	1995 onwards
T7	Balance sheets for financial assets and liabilities	annual	9	1995 onwards
T8	Non-financial accounts by sector	annual	9	1995 onwards
T801	Non-financial accounts by sector	quarterly	85 days (1)(2)	1999Q1 onwards
T9	Detailed tax and social contribution receipts by type of tax and social contribution and receiving subsector including the list of taxes and social contributions according to national classification	annual	9	1995 onwards
T10	Tables by industry and by region, NUTS level 2	annual	12/24	2000 onwards
T11	General government expenditure by function	annual	12	1995 onwards
T12	Tables by industry and by region, NUTS level 3	annual	24	2000 onwards
T13	Household accounts by region, NUTS level 2	annual	24	2000 onwards
T15	Supply table at basic prices incl. transformation into purchasers' prices	annual	36	2010 onwards
T16	Use table at purchasers' prices	annual	36	2010 onwards
T17	Symmetric input-output table at basic prices	five yearly	36	2010 onwards
T20	Cross classification of fixed assets by industry and by asset	annual	24	2000 onwards
T22	Cross classification of gross fixed capital formation by industry and by asset	annual	24	1995 onwards

T26	Balance sheets for non-financial assets	annual	24	1995 onwards
T27	Financial accounts of general government	quarterly	85 days (1)(2)	1999Q1 onwards
T28	Government debt (Maastricht debt) for general government	quarterly	3	2000Q1 onwards
T29	Accrued-to-date pension entitlements in social insurance	three yearly	24	2012 onwards

(1) The deadline of 85 days is applicable to Member States whose currency is the euro. For Member States whose currency is not the euro, the data transmission deadline is 3 months. If flagged as 'not published' at national level, the provisional figures that have been transmitted before expiry of the deadline of 85 days by the individual Member States should not be published at European level. The corresponding finalised figures shall be transmitted by the Member States concerned before expiry of the deadline of 3 months. Transmission within a period of 85 days of seasonally adjusted figures and figures in chain-linked volumes is voluntary. For Member States entering the economic and monetary union after the entry into force of this Regulation the applicable data transmission deadline is 85 days from the date of the Member State's entry.

(2) If a Member State transmits the complete data set within 85 days, data does not need to be transmitted at 3 months.

A2. List of figures

Figure 4.1: Graphical illustration of the main transmission requirements of the ESA 2010 TP and links of ESA 2010 data with data in other statistical domains	15
Figure 4.2: Interdependencies within the ESA 2010 TP	16
Figure 5.1: Practical implementation of HERP recommendations on benchmark revisions	27
Figure 6.1: Incorporation of revised information into all concerned ESA 2010 TP tables	34
Figure 6.2: Practical implementation of HERP recommendations on routine revisions for the three main tables of non-financial accounts	35
Figure 9.1: ONS roadmap for the publication of 2018 data published in December 2017	54
Figure 9.2: Snapshot taken from Istat's website on the revision process of quarterly data	55

A3. List of tables

Table 2.1: Milestones towards establishing a harmonised European revision policy for national accounts and BOP	9
Table 6.1: Characteristics of the harmonised European revision policy on routine revisions	32
Table 8.1: Indicative planning of actions to take place in case of non-scheduled revisions	48
Table 9.1: The Italian revision policy for routine revisions in terms of depth of revision for quarter and type of estimate.....	57
Table 9.2: The Swedish revision policy for routine and non-scheduled revisions.....	59
Table 11.1: Overview of the series requested for quality reporting	68
Table A.1: Overview of the tables included in the ESA 2010 transmission programme	73

A4. List of acronyms

BOP	Balance of payments statistics
BPM6	6th edition of the Balance of Payments and International Investment Position Manual
CMFB	Committee on Monetary, Financial and Balance of Payments Statistics
COICOP	Classification of individual consumption by purpose
DMES	Eurostat's Directors of Macro-Economic Statistics meeting
ECB	European Central Bank
ECOFIN	Economic and Financial Affairs Council
EDP	Excessive Deficit Procedure
EFC	Economic and Financial Committee
EMU	European monetary union
ESA	European System of Accounts
ESA 2010	European System of Accounts 2010 as defined in Regulation (EU) No 549/2013
ESA 2010 TP	ESA 2010 transmission programme as defined in Annex B, Regulation (EU) No 549/2013
ESA 95	European System of Accounts 1995 as defined in Regulation (EC) No 2223/96
ESCB	European System of Central Banks
ESGAB	European Statistical Governance Advisory Board
ESMS	Euro-SDMX Metadata Structure
ESQRS	ESS Standard for Quality Reports Structure
ESS	European Statistical System
ESSC	European Statistical System Committee
EU	European Union
GDP	Gross domestic product
GFS	Government Finance Statistics
GNI	Gross national income
GVA	Gross Value Added
HERP	Harmonised European Revision Policy
IIP	International investment position statistics
IOTs	Input-output tables
MAPE	Mean absolute percentage error
NACE	Statistical classification of economic activities in the European Community
NAWG	National Accounts Working Group
NFSA	Non-financial sector accounts
NPISH	Non-profit institutions serving households
NUTS	Common classification of territorial units for statistics

OECD	Organisation for Economic Cooperation and Development
ONS	Office for National Statistics of the United Kingdom
PEEIs	Principal European Economic Indicators
RMAR	Relative mean absolute revision
SDMX	Statistical Data and Metadata eXchange standard
SIMS	Single Integrated Metadata Structure
SMAPE	Symmetric mean absolute percentage error
SNA	System of National Accounts
SNA 2008	System of National Accounts 2008 published by the European Commission, the International Monetary Fund, the Organisation for Economic Cooperation and Development, the United Nations and the World Bank
SPC	Statistical Programme Committee
SRMAR	Symmetric relative mean absolute revision
SUIOTs	Supply and use input-output tables
SUTs	Supply and use tables
TF BRP	Task Force on Benchmark Revision Policy established by DMES
TF HERP	Task Force on Harmonised European Revision Policy established by CMFB
UK	United Kingdom

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The EU Open Data Portal (<http://data.europa.eu/euodp/en/data>) provides access to datasets from the EU. Data can be downloaded and reused for free, both for commercial and non-commercial purposes.

Practical guidelines for revising ESA 2010 data

This handbook has been prepared as a practical tool at the disposal of compilers of ESA 2010-based national and regional accounts. Its objective is to translate the voluntary EU recommendations on data revisions into specific practices ensuring accurate, reliable, consistent and comparable data. The handbook provides good practices for routine and benchmark revisions as well as for non-scheduled revisions.

For more information

<https://ec.europa.eu/eurostat/>

