OECD SHORT-TERM ECONOMIC STATISTICS WORKING PARTY (STESWP)

Development of guidelines on seasonal adjustment practices

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Submitted to the Working Party under item 8 of the draft agenda

Meeting:
25-27 June 2007

Franqueville Room
OECD Headquarters, La Muette, Paris
Starting at 09.30 a.m. on the first day

EXECUTIVE SUMMARY

1. At the June 2006 STESWP meeting the Working Party discussed the need to avoid duplication of any future activities on seasonal adjustment with those being undertaken by other international organisations in this area. The Working Party concluded that Eurostat would continue to take the lead on technical issues related to the development of guidelines to assist the convergence of national practices. The OECD would act as a conduit with respect to non-EU OECD Member countries.

2. Attached to this note are the recently released draft Euroindicators Working Group's 'Eurostat Guidelines on Seasonal Adjustment[1]'. While these Guidelines are drafted in the EU context, they do provide a good starting point for any discussion on any possible future Working Party work on seasonal adjustment. Please note:

- these are Eurostat guidelines and not European Statistical System (ESS) guidelines, the ESS guidelines are in preparation and will be based on these Guidelines; and
- the Guidelines presented in this paper as Annex 1 are very preliminary and Eurostat expect that an improved version will be released before the end of May 2007.

3. STESWP delegates from agencies in each non-European Union OECD Member country[2] and non-member observers are therefore asked to consult with the relevant experts in their agency / organisation on the attached draft Euroindicators Working Group seasonal adjustment Guidelines and provide written comment on:

(i) the possibility of their implementation by their statistical agency; and

(ii) identify and outline specific problems / issues with any of the individual draft guidelines.

4. STESWP delegates from agencies in all countries (i.e. OECD Member countries and non-member observers) are also asked to identify:

- suggested avenues of possible future STESWP work on the seasonal adjustment topic to further harmonise the seasonal adjustment methods applied at the national level.

A. INTRODUCTION

5. Feedback from STESWP delegates from previous Working Party meetings indicated that issues relating to seasonal adjustment are still a high priority for the Working Party. The aim of the non-technical discussion in June 2006 was to identify what further guidelines were needed with regard to the application of seasonal adjustment techniques for short-term economic statistics. Previous work in this area by the Working Party have been embodied in the *Data and Metadata Reporting and Presentation Handbook* released in late 2006 which provides recommendations related to the presentation of seasonally adjusted data, namely on:

[1] Eurostat D1 – DOC 185/06. Euroindicators Working Group, 9th Meeting – 4 & 5 December 2006.
[2] Australia, Canada, Iceland, Japan, Korea, Mexico, New Zealand, Norway, Switzerland, Turkey, United States, Brazil, Chile, China, India, Russian Federation, Slovenia, South Africa.

- standard terminology on key terms;

- forms of data to be presented to users in press releases, etc;

- analytical transformations of data in the form of different types of growth rates;

- what sort of information (metadata) on national seasonal adjustment practices should be presented to users.

6. During the discussion at the June 2006 meeting, the Statistical Office of the European Communities (Eurostat) emphasised the need for harmonized seasonal adjustment practices to enable the compilation of EU 30 and euro zone aggregates. The STS Regulation specifies the provision by countries of both non-seasonally adjusted and adjusted series. The current use by member states of a variety of seasonal adjustment packages (primarily X12 ARIMA and TRAMO-SEATS) is not the problem. However, there are considerable differences between countries in the choice of seasonal adjustment options each package offers and as a result there are differences for some indicators between Eurostat and nationally produced seasonally adjusted series.

7. At the June 2006 STESWP meeting the Working Party also discussed the need to avoid any duplication of activities with other international organisations in this area with those activities currently underway, e.g. ECB-Eurostat Joint Steering Group. The Working Party concluded that Eurostat would continue to take the lead on technical issues related to the development of guidelines to assist the convergence of national practices. In the context of the OECD bridge function between EU and non-EU Members of the Organisation endorsed by the OECD Committee on Statistics (CSTAT) in 2005 the OECD would act as a conduit for collecting the views / opinions of non-EU OECD Member countries.

8. Over the last 12 months Eurostat has undertaken a number of initiatives to harmonise seasonal adjustment practices across EU members. Part of this harmonisation process has seen the Euroindicators Working Group produce a brief framework entitled – *Eurostat Guidelines on Seasonal Adjustment*. These Guidelines were presented at the 9th Working Group meeting on 4-5 December 2006 in Luxembourg.

9. More specifically, the aim of the Eurostat framework is to provide member states with a basic set of seasonal adjustment guidelines to ensure data and methodological convergence. These ideals cover not only the technical aspects of seasonal adjustment but also a common structure for the exchange of meta-information, promoting training activities, and studying the possibility of developing a coordinated activity for testing and analysing existing and newly developed seasonal adjustment tools.

10. STESWP delegates from agencies in each non-European Union OECD Member country and non-member observers are therefore asked to consult with the relevant experts in their agency / organisation on the attached draft Euroindicators Working Group seasonal adjustment guidelines and provide written comment on:

- the possibility of their implementation by their statistical agency; and

- identify and outline specific problems / issues with any of the individual draft guidelines.

11. STESWP delegates from agencies in all countries (i.e. OECD Member countries and non-member observers) are also asked to identify:

- suggested avenues of possible future STESWP work on the seasonal adjustment topic to further harmonise the seasonal adjustment methods applied at the national level.

B. DRAFT EUROSTAT GUIDELINES ON SEASONAL ADJUSTMENT – BRIEF OUTLINE

12. While in still in draft form, the Eurostat Guidelines provide a good basis and starting point for any seasonal adjustment discussion. The Guidelines provide producers of seasonal adjusted data with a one page introduction to the process known as seasonal adjustment including the advantages, disadvantages and costs of seasonal adjustment followed by 17 guideline tables.

13. The Guidelines themselves are divided into five sections: 1 - Pre-treatment; 2 - Seasonal adjustment; 3 - Revisions policies; 4 - Quality of seasonal adjustment; and, 5 - Specific issues on seasonal adjustment. Each section is then presented as a table that follows a standard layout, namely: Description; Options; Current practices; Evaluation of alternatives (A – Best alternative, B – Acceptable, C – To be avoided); Problems in harmonization of practices; Alternatives chosen; and, Actions needed.

14. The Guidelines provide the statistician undertaking seasonal adjustment a walk through the steps involved in seasonally adjusting data, the outcome, and the need to measure and understand the quality of the process and the seasonally adjusted data. The Guidelines cover current issues affecting the seasonal adjustment process (e.g. direct versus indirect methodology), standard seasonal adjustment procedures (e.g. trading day adjustment) and ways of measuring the value of the final data (e.g. diagnostics).

15. While non-EU OECD Member country and non-member country Working Party members are advised to comment on the ability of their statistical agency in implementing these Guidelines, they should probably provide their brief comments on the issues outlined in paragraph 13 above at a more general (not technical) level. For example, section '2.1 – Choice of seasonal adjustment approach' of the guidelines outlines two seasonal adjustment tools but doesn't make a choice between the two, only stating that one of the two should be used. In this case the STESWP delegate should probably focus on whether one of the two are being used in their statistical agency rather than justifying the use of their choice.

16. As already mentioned, the Guidelines are a first draft and have yet to be fully commented on by the EU Member states or discussed at the recently (re-)formed Eurostat – ECB Steering Group on Seasonal Adjustment.

17. Non-European OECD Member and non-member countries are probably best to either ignore, or read with the understanding that the Guidelines are written for EU Member States, the following sections of the Guidelines:

- Eurostat Quality Report for Seasonal Adjustment - This references a Eurostat produced framework for the quality assessment of seasonal adjustment that non-EU Member States have probably not seen.

- Template for Seasonal Adjustment Metadata - This references an ECB-Eurostat standard template for seasonal adjustment metadata that non-EU Member States have probably not seen.

18. How the Guidelines and the Euroindicators Working Group will be included in the recently formed Joint Eurostat – ECB 'Steering Group on Seasonal Adjustment' will be covered by the Eurostat presentation as part of this agenda item at the June 2007 STESWP meeting.

Annex 1.

Euroindicators Working Group

9TH MEETING – 4 & 5 DECEMBER 2006

EUROSTAT D1 – DOC 185/06

EUROSTAT GUIDELINES ON SEASONAL ADJUSTMENT

ITEM V ON THE AGENDA OF THE MEETING OF THE WORKING GROUP ON EUROINDICATORS

EUROSTAT GUIDELINES ON SEASONAL ADJUSTMENT

By Cristina Calizzani and Gian Luigi Mazzi

0 – SEASONAL ADJUSTMENT ADVANTAGES AND COSTS

1 - PRE-TREATEMENT

Item 1.1: National and EU/euro area calendars

Item 1.2: Methods for trading day adjustment

Item 1.3: Correction for moving holidays

Item 1.4: Outlier detection and correction

Item 1.5: Model selection

2 - SEASONAL ADJUSTMENT

Item 2.1: Choice of seasonal adjustment approach (Tramo-Seats versus X-12-ARIMA, including consideration of recent developments)

Item 2.2: Consistency between raw and seasonally adjusted data, including adjustment methods

Item 2.3: Geographical aggregation: direct versus indirect approach

Item 2.4: Sectoral aggregation: direct versus indirect approach

Item 2.5: Data presentation issues (trend-cycle estimates, seasonally adjusted estimates, …)

3 - REVISIONS POLICIES

Item 3.1: Timing of revisions and re-estimation of Arima models and coefficients

Item 3.2: Concurrent versus extrapolated seasonal factors

4 - QUALITY OF SEASONAL ADJUSTMENT

Item 4.1: Common quality measures for seasonal adjustment

Item 4.2: Eurostat Quality Report for seasonal adjustment

Item 4.3: Template for seasonal adjustment metadata

5 - SPECIFIC ISSUES ON SEASONAL ADJUSTMENT

Item 5.1: Seasonal adjustment of short time series

Item 5.2: Treatment of problematic series

0 – Seasonal adjustment advantages and costs

Introduction

Infra-annual macro-economic statistics represent nowadays a key tool for economic policy-making, business cycle analysis and modelling, and forecasting. However, short-term statistics are often characterised by seasonal fluctuations and other calendar/trading-day effects, which can mask relevant short and long-term movements of the series, and impede a clear understanding of economic phenomena.
Consequently, many statistics are subject to seasonal adjustment, namely removal of the seasonal component, in order to achieve a better knowledge of cyclical fluctuations and long-term trends.
Statistical agencies around the globe are engaged daily in seasonal adjustment and many resources are dedicated to filtering raw data. Indeed, seasonal adjustment is a subject of perpetual debate in many respects, with many seasonal adjustment methods and tools still under development.
The debate is continuously evolving, with new directions and frontiers that are still under study. One subject of debate focuses on advantages and disadvantages of seasonal adjustment, and the associated risks of 'manipulation' of the original and observed data.

Advantages

- Provide more smoothed and understandable series for analysts
- Facilitate the comparison of long-term and short-term movements among sectors and countries;
- Supply users with the necessary input for business cycle analysis (i.e. output gap estimation), trend-cycle decomposition and turning points detection;

Drawbacks of SA

- As seasonality is not precisely defined, SA often depends on the 'a priori' hypotheses underlying the model chosen and the hypothesized data generation process (subjectivity of SA);
- Quality of SA strongly depends on quality of raw data;
- Information contained on the (hypothesized) seasonal component of the series, and its correlation with other components, are lost;
- Lower degree of comparability of data among countries and across statistical domains if clear rules and policies are not defined/followed;
- Seasonally adjusted data are often inappropriate for econometric modelling purposes.

Costs and risks of SA

- Seasonal adjustment is time consuming, significant computer/human resources must be dedicated to this task
- A common and well defined IT structure for SA (Building Block) is needed
- Inappropriate or low-quality seasonal adjustment can give misleading results and increase the probability of false signals (credibility effects)

Conclusion

Production units should accurately consider all the advantages, drawbacks and costs of SA before making the decision to produce SA data. Seasonal adjustment must be performed only when there is a clear evidence of seasonal/calendar effects.
Production units should be well aware that making any seasonal and/or calendar adjustment on series which do not show any evidence of such effects is an inappropriate statistical treatment. Other kind of smoothers can be used when there is no clear evidence of seasonal movements.

1 - PRE-TREATEMENT

1.1 - National and EU/euro area calendars

Description

National and EU/euro area calendars can be used for working/trading-days adjustment. National calendars are available under Demetra, but not under Tramo-Seats, TSW and X-12-ARIMA. The ECB has recently developed an EU/euro area calendar, built from weighted averages of national calendars, whose use should be appropriate for seasonal adjustment of raw EU aggregates (direct approach).

Options

Use of default calendars
Use of national calendars or the euro area calendar as appropriate
Definition of series not requiring calendar adjustment

Current practices

Evaluation of alternatives*

A) The use of EU/euro area calendars is highly recommended for the seasonal adjustment of aggregates when a direct approach is chosen. Conversely, the use of national calendars is of course recommended in the case of indirect adjustment

B) Use of default calendars (defined within the tool chosen for seasonal adjustment, without reference to national or EU/euro area specificities)

C) No correction for working days despite diagnostic evidence of working/trading day effects

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

1 - PRE-TREATEMENT

1.2 - Methods for trading day adjustment

Description

Trading day adjustment aims at obtaining a seasonally adjusted series whose single-point values are independent of day-of-week effects, number of Mondays, Tuesdays, etc. in the month/quarter and length of month/quarter effects, at least those not estimated by seasonal adjustment filters[3]. The leap-year effect is the non seasonal part of the length of month/quarter effect.

Options

Adjustments can be carried out in a number of ways. One can distinguish between proportional and regression methods for adjustment. Under the first approach, the effects of trading days is estimated by counting the proportion of them in the month/quarter; under the second the effects of trading days is estimated in a regression framework. Within the regression approach, the effect of trading days can be estimated by using or not a correction for the length of the month or leap year, regressing the series on the number of days, etc.

Current practices

Evaluation of alternatives*

A) Regression-based approach, with all pre-tests for number of regressors, length and composition of month, check of plausibility of effects (sign and size of estimated coefficients), etc.
B) Default regression-based approach
C) Purely proportional adjustment when this leaves evidence of trading days effects in the adjusted series

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) to be avoided

[3] The length of every month/quarter except February/first quarter is a seasonal effect which the seasonal adjustment filters can account for, so the trading day adjustment procedure need only account for day-of-week and leap year effects.

1 - PRE-TREATEMENT

1.3 - Correction for moving holidays

Description

Adjustment for moving holidays aims at obtaining a seasonally adjusted series whose single-point values are independent of particular calendar effects which occur irregularly within years. The effects of moving holidays can extend themselves over a different time span. They can have also effects across months and even quarters.

Options

No correction;
Correction within proportional working day adjustment;
Automatic correction
Correction based on an estimation of the duration of the moving holidays effects

Current practices

Evaluation of alternatives*

A) Regression-based approach, with pre-tests for Easter, other moving holiday effects. Definition of the length of Easter effect on the basis of results of pre-tests
Check of plausibility of effects

B) Default regression-based approach

C) No tests/correction for the above effects despite diagnostic evidence of such effects

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) to be avoided

1 - PRE-TREATEMENT

1.4 - Outlier detection and correction

Description

Outliers are abnormal values of the series. They can manifest themselves in a number of ways, the most important being impulse outliers (abnormal values in isolated points of the series), transitory changes (series of innovation outliers with transitory effects on the level of the series), level shifts (series of innovation outliers with constant and permanent effect on the level of the series). See item 5.2 for definition/treatment of problematic series.

Options

Types of outliers to be considered for pre-testing
Removal or not of outliers before seasonal adjustment is carried out

Current practices

Evaluation of alternatives*

A) The series should be checked for outliers of different types (see above) according to default options in the tools. Once identified, outliers due to data errors should be corrected, while others should be adjusted out of the series before seasonal adjustment, and then re-introduced. Outliers must be explained/modelled using all available information.

B) As before, but complete automatic procedure according to available tools.

C) No preliminary treatment of outliers

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

1- PRE-TREATEMENT

1.5 - Model selection

Description

Model selection pertains to: criteria to select the appropriate model for pre-adjustment and seasonal adjustment or forecast extension for seasonal adjustment; log versus non-log specification of the model; use of additive or multiplicative components, statistical checking of the adequacy of the estimated model, analysis of decomposition on the basis of the chosen model, etc.
See item 5.2 for definition/treatment of problematic series.

Options

Automatic model selection
Model selection based on a set of predefined models
Manual model selection

Current practices

Evaluation of alternatives*

A) Automatic selection within a large number of models (additive/multiplicative, extended order Arima models, etc.) according to the options of the tool, after check for model adequacy using standard statistical tests (ex. normality, heteroskedasticity serial correlation, etc.) and spectrum diagnostics and use of manual model selection for the most important series and/or the more problematic series.

B) As before, but complete automatic procedure

C) Selection based on restricted number of pre-defined models that has not been tested for adequacy with the set of series being adjusted

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

2 - SEASONAL ADJUSTMENT

2.1 - Choice of seasonal adjustment approach (Tramo-Seats versus X-12-ARIMA, including analysis of recent developments)

Description

Tramo-Seats and X-12-ARIMA are currently the most commonly used seasonal adjustment packages. The first one is mainly based on a parametric approach where the second one is mainly based on a non-parametric approach. The new X-13A-S software will contain both approaches in one common package with common diagnostic and output structure.

Options

X-12-ARIMA
Tramo Seats or TSW
X13A-S (in the future)

Current practices

Evaluation of alternative*

A) Tramo-Seats and X-12-ARIMA/X-13A-S should be used for seasonal adjustment. Choice between the two programs can be also done on the basis of past experiences, subjective appreciation, characteristics of the series etc. Production tools should be updated on a regular basis by data producers after a sufficiently long testing period

B) Use of structural (univariate or multivariate) time series models based on simultaneous representation of the unobserved components of the series within a software that can estimate trading day, holiday and outlier effects and that has diagnostics or automatic modelling procedures that can reliably identify the presence of such effects.

C) Use of other production tools other than Tramo-Seats, X-12-ARIMA/X-13A-S and other adequately comprehensive structural time series model software (Dainties, BV4, etc.).

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

2 - SEASONAL ADJUSTMENT

2.2 - Consistency between raw and seasonally adjusted data, including adjustment methods

Description

Under the hypothesis that the effect of the seasonality is neutral over the whole year, which is quite unrealistic, especially in a multiplicative model with evolving seasonality and calendar effects, it is possible to assume that the sum of seasonally adjusted data over each year should coincide with the sum of the original data. This is often a strong requirement for many users especially in domains where the same kind of information is available at different frequencies (i.e. National Accounts). From a purely theoretical point of view, this request does not have any evident justification. Moreover, especially when calendar and other non-linear effects are relevant, it can create a bias in seasonally adjusted data.

Options

Do not apply any constraint
To apply default constraining techniques (X-12-ARIMA)
To constrain seasonally adjusted annual totals to sum to original data annual totals.
To constrain seasonally adjusted annual totals to sum to trading day (only) adjusted original annual totals.

Current practices

Evaluation of alternatives*

A) The sum (average) of raw and seasonally/working days adjusted data should not necessarily coincide
B) Consistency between raw/working days adjusted and seasonally/working days adjusted data can be accepted under particular circumstances, i.e. requirements from users
C) Impose consistency between seasonally/working days adjusted data and raw data

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

2 - SEASONAL ADJUSTMENT

2.3 - Geographical aggregation: direct versus indirect approach

Description of item 2.3

Seasonal adjustment can be performed at different geographical aggregation levels: SA can be performed at national level and then European total derived by aggregated national seasonally adjusted figures (indirect approach); alternatively seasonal adjustment can be performed directly on European total obtained by aggregation of national non seasonally adjusted or working day adjusted only data (direct approach). The debate concerning whether it is better to perform seasonal adjustment at the most disaggregate level and then aggregate seasonally adjusted data or to directly seasonally adjust aggregates data is still open. Neither theoretical nor empirical evidence uniformly favours one approach over the other. For EU aggregates there is often a strong requirement of consistency between MS data and European-level data, especially when they are additively related (i.e. QNA, External trade, employment/unemployment).

Options

Indirect approach (seasonally adjust national components either in a centralized or decentralized way using the same approach and software and then derive totals by aggregation of seasonal adjusted components)
Mixed indirect approach (seasonally adjust national data at NSI level with different approaches and software.
Direct approach (aggregation of non-seasonally adjusted data and seasonal adjustment of the aggregates);
Direct approach with distribution of discrepancies (since the previous approach creates discrepancies between aggregates and components, to ensure the consistency if the discrepancies are small enough, it is possible to apply a multivariate adjustment procedure such as Denton)

NB: In practical terms the use of different options presented above is constrained by some institutional principle i.e. subsidiarity principle.

Current practices

Evaluation of alternatives*

A) The direct approach is recommended for transparency reasons and in case of a lack of harmonisation of national approaches. The centralized indirect approach is also recommended for special cases where the subsidiarity principle doesn't apply (external trade, unemployment)

B) The decentralized indirect approach within a common quality assessment framework is acceptable especially where there is a strong requirement from the users of additivity between national and European totals;

C) The used of the mixed approach must be avoided especially when other methods than Tramo Seats and X-12 are used at MS level

Problems in harmonization of practices

Alternatives chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

2 - SEASONAL ADJUSTMENT

2.4 - Sectoral aggregation: direct versus indirect approach

Description of item 2.4

Seasonal adjustment can be performed at different sectoral aggregation levels. The debate concerning whether it is better to perform seasonal adjustment at the most disaggregate level and then aggregate seasonally adjusted data or to directly seasonally adjust aggregates data is still open. Neither theoretical nor empirical evidence uniformly favours one approach over the other.

Options

Indirect approach (seasonally adjust components either in a centralized or decentralized way using same approaches and software and then derive totals by aggregation of seasonal adjusted components)
Direct approach (aggregation of non-seasonally adjusted data and seasonal adjustment of the aggregates);
Direct approach with distribution of discrepancies (since the previous approach creates discrepancies between aggregates and components, to ensure the consistency if the discrepancies are small enough, it is possible to apply a multivariate adjustment procedure such as Denton)

NB: In practical terms the use of different options presented above is constrained by the ones chosen for the geographical aggregation. In fact if an indirect adjustment has been chosen for the geographical aggregation there is no possibility of using a direct adjustment for sectoral aggregation.

Current practices

Evaluation of alternatives*

A) If a direct adjustment has been chosen for the geographical aggregation, both direct and indirect approaches are recommended for sectoral aggregation. The choice between the two approaches depend on a number of factors, among these the characteristics of data (correlation of single components, quality of basic data, etc.) and users' requests (e.g. consistency of components and aggregates); Otherwise only an indirect adjustment is feasible for the sectoral aggregation.

B) The use of a direct approach at any level complemented by benchmarking techniques (i.e. Denton's approach) to obtain consistency of disaggregated and aggregated estimates can be also accepted if the adjustments that arise from benchmarking are of adequate quality.

C) An indirect approach using different methods than X-12 and Tramo-Seats should be avoided.

Problems in harmonization of practices

Alternatives chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

2 - SEASONAL ADJUSTMENT

2.5 - Data presentation issues (trend-cycle estimates, seasonally adjusted estimates, …)

Description

After removing seasonality and all calendar effects (when significant) data can be presented either in seasonally adjusted or trend-cycle form. The difference between the two is the irregular component in the seasonally adjusted data. Seasonally adjusted data are often considered more informative for univariate and multivariate purposes. Trend-cycle data are usually preferred for graphical representations and for series characterised by a high degree of volatility.
The topic of presentation issues also concerns which growth rates should be used in press releases (i.e. annualised against standard growth rates, period on period versus annual growth rates, etc.).

Options

Include only raw data in press release
Extend the informative content of press releases with one or more of the following transformations: SA series, SA plus WDA series, Trend-cycle series
Present only levels or different forms of growth rates

Current practices

Evaluation of alternatives*

A) Presentation of trend-cycle data in press releases should be in general avoided unless series are characterised by very high volatility. Even in this case, only graphs of trend-cycle series should be included in press releases. Press releases should always contain raw data and SA ones. However, raw data, seasonally adjusted and trend-cycle series should be available to users through Eurostat website.
Concerning growth rate, period on period growth rates have to be computed on SA data while annual growth rates have to be computed on non SA data. The use of annualized growth rate is not recommended.

B) Present only seasonally adjusted data

C) The presentation of trend-cycle data only should be avoided as well as the computation of early growth rate on SA data.

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

3 - REVISIONS POLICIES

3.1 - Timing of revisions and re-estimation of Arima models and coefficients

Description

Especially for model based approaches, it is important to define the timing for the re-identification and re-estimation of the Arima models. Usually, the re-estimation of parameters is carried out more frequently than the re-identification of models. The last one takes place usually once per year or even less frequently.

Options

To re-identify and re-estimate models once a year.
To re-identify models once a year and re-estimate parameters each time seasonal adjustment is performed.
To specify other intervals between re-identification and re-estimation.

Current practices

Evaluation of alternatives*

A) Models are re-identified once per year and parameters are re-estimated every time seasonal adjustment is performed

B) To re-identify and re-estimate models once a year.

C) No re-identification/estimation of models or different timing from those under A) and B) should be avoided

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

3 - REVISIONS POLICIES

3.2 - Concurrent versus extrapolated seasonal factors

Description

For the current year seasonally adjusted data can be computed either by running every month/ quarter the seasonal adjustment procedure or by using extrapolated coefficients computed once a year. In the first case, data are revised every month/ quarter. In the second one, data are not revised within the year but only once a year. In terms of accuracy the first approach seems to be preferred but the second one is often preferred by users which do not like that data are continuously revised. The use of extrapolated seasonal factors can lead to biased results especially when unexpected events occur during the year.
Revisions should be scheduled in a regular way and possibly according to the release calendar. No revision should take place between two consecutive revisions.

Options

Concurrent adjustment
Concurrent adjustment with only the preceding month and same month of the previous year revised until December adjustment, when all past adjustment values are updated. This could avoid complaints from some users about too many revisions.
Use of extrapolated seasonal factors

Current practices

Evaluation of alternatives*

A) Concurrent adjustment should be preferred

B) Concurrent adjustment with updating of only a few past values until or use of extrapolated seasonal factors with the possibility of modifying them when unexpected events take place.

C) Use of purely extrapolated factors should be avoided.

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

4 - QUALITY OF SEASONAL ADJUSTMENT

4.1 - Common quality measures for seasonal adjustment

Description

Tramo-Seats and X-12-ARIMA have their own quality measures reflecting somewhat the different underlying philosophy on which they are based. Nevertheless it is possible to extend X-12-ARIMA quality measures to Tramo-Seats and vice versa. Eurostat has already done this kind of work. Moreover in X-13A-S a common set of quality diagnostics has been developed for X-12-ARIMA and Tramo-Seats. These quality diagnostics have to be used to validate the result of SA. (See item 5.2 for definition/treatment of problematic series)

Options

To use specific quality measures for each approach
To use common diagnostics for both approaches.

Current practices

*Evaluation of alternatives**

A) Use of common measures/diagnostics for analysis of quality of seasonal adjustment performed with different tools

B) Use of standard quality measures/diagnostics provided by tools

C) No use of quality measures/diagnostics to evaluate seasonal adjustment.

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

4 - QUALITY OF SEASONAL ADJUSTMENT

4.2 - Eurostat Quality Report for seasonal adjustment

Description

In the recent past Eurostat has developed a framework for the quality assessment of seasonal adjustment. The main output of this activity has been the creation of a standard quality report for seasonal adjustment. Both a short and a detailed version of this quality report have been described in some detail.

Options

To use the Eurostat quality report
To identify further improvements to the Eurostat quality report
To use only quality measures available in standard software for seasonal adjustment

Current practices

Evaluation of alternatives*

A) To use an improved (to be finalised) version of Eurostat quality report

B) Use of the existing Eurostat quality report

C) No use of any quality framework for the evaluation of seasonal adjustment

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

4 - QUALITY OF SEASONAL ADJUSTMENT

4.3 - Template for seasonal adjustment metadata

Description

It is important that seasonally adjusted data are appropriately documented by using a standard format, possibly in line with SDDS structure. ECB-Eurostat Task Force on Quarterly National Accounts has developed a standard template for SA metadata.

Options

To use the existing standard template for SA metadata
To improve the standard template for SA metadata
To include SA information into the general SDDS files

Current practices

Evaluation of alternatives*

A) Use of standard (or improved) template for SA metadata

B) Include SA information into the general SDDS files

C) No methodological information is supplied for SA

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

5 - SPECIFIC ISSUE ON SA

5.1 - Seasonal adjustment of short time series

Description

If some series are too short, seasonal adjustment cannot be performed either with Tramo-Seats or X-12-ARIMA; series could be adjusted using alternative less standard procedures (i.e. Dainties). Moreover when series are long enough to run X-12-ARIMA or Tramo-Seats but remain quite short (less than 10 years) some instability problems can appear. Several empirical comparisons have been done to investigate the relative performance of X-12-ARIMA and Tramo-Seats on short time series.

Options

Do not adjust time series when they are shorter than the minimum requirement for Tramo-Seats and X-12-ARIMA.
Use of alternative procedures to seasonally adjust short time series.
Conduct comparative studies on the relative performance of Tramo-Seats and X-12-ARIMA when series are shorter than 10 years.
Inform users about instability problems when series are shorter than 10 years.

Current practices

Evaluation of alternatives*

A) Seasonal adjustment of short time series should be performed, whenever possible, with standard tools. Moreover, non official back-recalculated time series should be used to extend the sample and stabilise seasonal adjustment. Simulations on relative performances of the existing standard tools for adjustment of short series should be carried out. Users should be informed on the greater instability of seasonal adjusted data and on methods used. Clear publication policy rules should be defined.

B) Seasonal adjustment is not performed when series are too short

C) Use of non standard tools should be avoided for short time series

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided

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5.2 - Treatment of problematic series

Description

Some series can be characterised by strange features such as:
1) A model with acceptable modelling diagnostics cannot be found, even by shortening the series.
2) Absence of a clear signal due to the presence of a dominant irregular component, (e.g. small or no seasonal peaks in the differenced (and logged, if appropriate) original data).
3) Unstable seasonality (e.g. visible in graphs or in inconsistent adjustments from overlapping spans of data)
4) Large number of outliers compared with the length of the series (i.e. more then 10% of irregular points)
5) Heteroskedasticity in the series/components that is not restricted to a few calendar months or that cannot be avoided by deleting some early years of data, leaving enough data for model estimation.

These series cannot be submitted to standard seasonal adjustment: ad hoc treatment should be carried out, both in terms of software and set of options. Quality of seasonal adjusted data depends on the suitability of the strategy adopted.

Options

Seasonally adjust only recent years of the series if deleting earlier data makes it possible to find a model/adjustment of reasonable quality
To perform ad hoc seasonal adjustment for all problematic series
To perform ad hoc seasonal adjustment only when problematic series are relevant
No ad hoc seasonal adjustment is performed

Current practices

Evaluation of alternatives*

A) If other alternatives fail, seasonal adjustment is restricted to the last 7-10 years of data for series for which this yields acceptable adjustment. A case by case approach to seasonal adjustment should be preferred to a standard one. Users should be informed on the adopted strategy. In case where the seasonal adjustment of some components of minor importance could compromise the quality of the seasonal adjustment of the aggregates, it can be decided of not performing any seasonal adjustment on such series.

B) Seasonal adjustment is performed only on relevant problematic series, when failure to adjust these series leads to residual seasonality in important higher level aggregates.

C) Seasonal adjustment performed in automatic way for all series should be avoided.

Problems in harmonization of practices

Alternative chosen

Actions needed

* A) Best alternative; B) Acceptable; C) To be avoided