

Seasonal adjustment: 2012 update

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This annual article reviews the seasonal adjustment of the Bank of England's published series. Following changes to the review process made in 2011, this article has a broader scope, and describes other work related to seasonal adjustment in addition to providing details about the regular review of seasonally adjusted series.

Introduction

Seasonal adjustment aims to identify, estimate and remove regular seasonal fluctuations and typical calendar effects (e.g. trading day) from time series data.

Since 2004, the Bank of England has been using X-12-ARIMA to seasonally adjust data, and review the settings for selected series on an annual basis.¹ The results from each review have been detailed in a series of articles in this publication. As described in last year's article, from 2011 onwards this review process will be spread out across the year into three separate phases.² This article presents the results of the three phases of the review conducted in 2011.

As well as regularly reviewing the settings used for each specific series, the methodology used for seasonal adjustment is subject to ongoing analysis.

Annual Review Process

The annual review of seasonally adjusted series is currently divided into three phases spread across the year, as detailed in Table 1.

Table 1

Phase	Type of series covered
1	Broad money and credit, notes and coin
2	Balance sheet, capital issuance, housing equity withdrawal, other
3	Lending to individuals

Overall, 208 series were reviewed during the three phases, as shown in Table 2.

Table 2

Number of series reviewed	208
Seasonal series – settings checked	140
Non-seasonal series checked for seasonality	48
Indirectly adjusted series checked for residual seasonality	20

¹ John Thorp (2003), 'Change of seasonal adjustment method to X-12-ARIMA', *Bank of England Monetary & Financial Statistics*, available at www.bankofengland.co.uk/statistics/Documents/ms/articles/artdec03.pdf.

² Fida Hussain (2011), 'Changes to the annual seasonal adjustment review', *Bank of England Monetary & Financial Statistics*, available at www.bankofengland.co.uk/statistics/Documents/ms/articles/art2mar11.pdf.

As before, the following issues were considered:

- presence of seasonality;
- seasonal adjustment settings:
 - ARIMA model choice;
 - calendar effects;
 - outliers; and
 - seasonal and trend filters.

Of the 208 series reviewed, the settings on 142 were left unchanged. Table 3 outlines the main changes made to the remaining 66 series. All changes were introduced with effect from the month following the end of the review phase and revisions were generally small.

Table 3

Total number of series changed	66
Changed from seasonal to non-seasonal	0
Changed from non-seasonal to seasonal	4
Seasonal adjustment settings changed	62
Direct/Indirect adjustment structure changed	0

Ongoing Work

In addition to the regular review process, the Bank also conducts more general work on issues relating to seasonal adjustment:

- The Bank is currently considering how to deal with seasonal adjustment of certain series over the Diamond Jubilee period, given that the monthly pattern of bank holidays will be different in 2012 compared to most other years. Previous work on the treatment of the Golden Jubilee in 2002 was described in an earlier article in this publication.³
- The Bank's current approach is to seasonally adjust the complete time span of each series. But as the length of series increases, the Bank is considering the possibility of applying seasonal adjustment to reduced spans of data.
- Series can either be adjusted directly or indirectly (as the sum, or less frequently the difference, of their seasonally adjusted components). The method

³ Nick Davey (2006), 'A work programme in financial statistics – April 2006', *Bank of England Monetary & Financial Statistics*, available at www.bankofengland.co.uk/statistics/Documents/ms/articles/art1apr06.pdf.

chosen depends on various properties of the series and its components, and the relationships between these. The Bank continues to monitor the adjustment structures of key series to ensure that these remain appropriate.

- Over 2011 and 2012, the Bank participated in the Government Statistical Service (GSS) Task Force on evaluating the X-13ARIMA-SEATS seasonal adjustment package.⁴ The Task Force has now submitted its final report to the GSS Statistical Policy and Standards Committee, and is currently awaiting a response.

⁴ For more details on this Task Force, see www.statistics.gov.uk/hub/government-statistical-service/index.html.