Shortening estimation span for long time series: Practical steps

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1 When ? Why ?

In case of

- series with a break
- series without visible break but over 20 years-long

We will focus on the second case here. The Guidelines on SA stress that performing SA on over 20 years long TS can be hard, as the underlying data generating process has evolved. Chapter 6.2 gives advice on dealing with this issue and should de be complemented by chapter 4 on revisions, which considers not revising published data earlier than a fixed date.

The hypothesis is that an estimation on an "optimal" span (8-12 years according to the literature) will deliver a more accurate message at the end of the series, which is the period of interest.

2 Span of estimation: what is fixed ?

2.1 Estimated over the whole span

reg-arima model: decomposition scheme, trading days coefficients, detected outliers This model is given to seats for decomposition (rigidity)

2.2 Flexible regarding estimation span

decomposition with X-11: moving averages on mobile windows

3 Revision prone cases and suggested measures

Here revisions represent the difference of estimation between the whole (long) span (called LS) ans the shorter optimal span (called OS)

what fosters revisions:

strong trading days effects

strong pre-adjustment effects over all

SEATS decomposition with complex (non airline models

Long series without trading days and decomposed with X-11: small revisions to be expected between OS and LS.

3.1 Revision indicators

compare LS and OS estimation influence on the message delivered at the end of the series, eg last five or three years, which is usually of greater interest for the user:
The greater the discrepancies, the more "urgent" cutting the estimation span appears to be Indicators

- % of divergent signs in the growth rate of the SA series
- divergence of growth rates in points
- divergence of levels

4 Practical advice

Illustrated with the example of French Ipi, available since 1990.

4.1 Choose a point up to which data can be frozen

This is an optional step, see chapter 4. Will depend on your raw data revision. French Ipi is revised up to 2012, not earlier.

4.2 Choose a starting point form "optimal" estimation span

here we assume the series has no visible break. The span will be 8-12 years long, don't start in the middle of a crisis (8 to 10 years later you'll repeat the shortening process)

French IPI : in 2018 estimation span shortened from [1990 ; 2018] to [2004; 2018] Will be shortened again in 2024, to [2014 ; 2024] probably

4.3 Overlapping spans

Your past (or historic) estimation span and optimal span should overlap (see chapter 6) So that you can glue the series before you "publication freezing point" French ipi :

- estimation on the past till 2018

- optimal estimation from 2014 to 2018
- gluing on 2011 data and freezing from 2012

New estimations are published from 2012.

4.4 Gluing series together

Different methods are available, really depending on kind of data from just "gluing estimation" to preserving levels or growth rates