3.3 Addendum: bias correction in SA algorithms

ESTP training

Description of the problem

- Log-additive decompositions
  - SEATS with log transformation, X11 with log-additive mode

$$\log Y_t = t_t + s_t + i_t$$
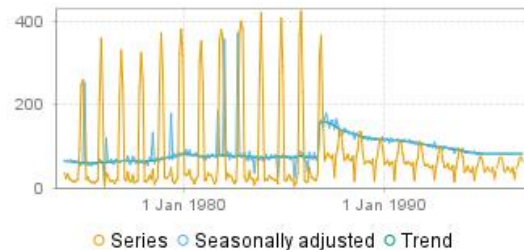
$$\rightarrow Y_t = \exp t_t \cdot \exp s_t \cdot \exp i = T_t \cdot S_t \cdot I_t$$

$$\sum_{yearly} s_t \equiv 0 \leftrightarrow \sqrt[p]{\exp s_t} \equiv 1 \leftrightarrow \frac{1}{p} \sum_{yearly} S_t > 1$$
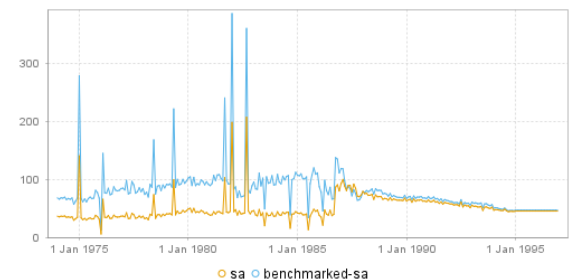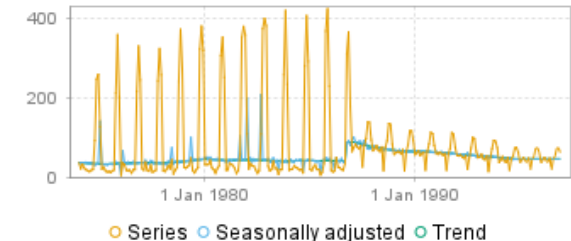
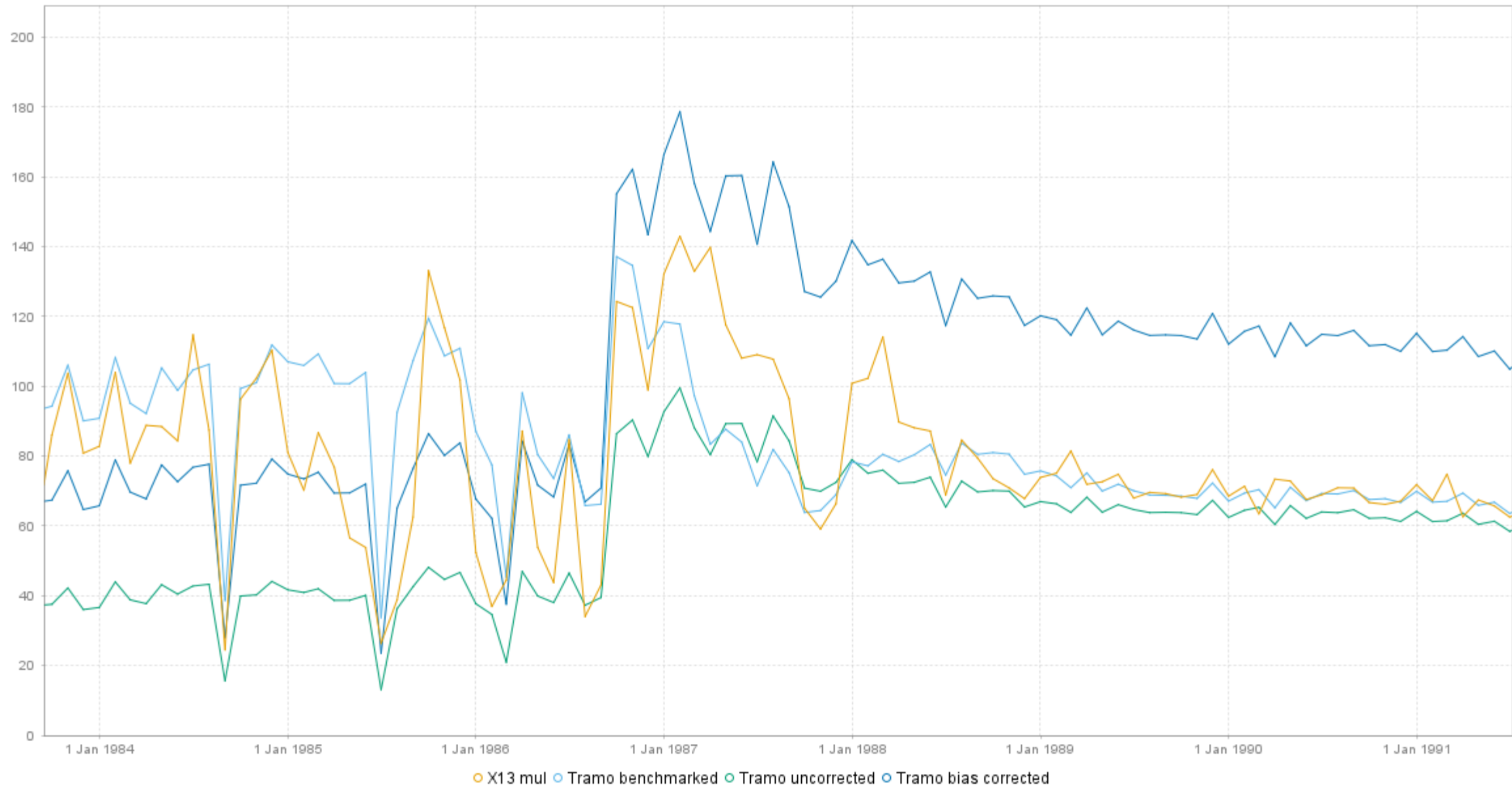$$\frac{1}{p} \sum_{yearly} SA_t < \frac{1}{p} \sum_{yearly} Y_t$$

Possible solutions

- Avoid log transformations (multiplicative X11)

- Correct S, I and T for their average bias on the whole series (Tramo)
  - But…

- Don't correct the bias (SA below the raw figures)

- Experimental options (X12): smooth correction

- Don't correct and apply benchmarking

X13 mul   Tramo benchmarked   Tramo uncorrected   Tramo bias corrected

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THE COMMISSION

Additional remarks

- Bias correction will generate some revisions (constant factor)
- No good solution if the seasonal factors highly differ following the periods

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