7.7. The output items

The CSV, TXT and XLS outputs of JDemetra+ may contain the items shown in Table 7.16.

Table 7.16: A list of output items of JDemetra+ CSV, TXT and XLS formats.

Code	Meaning
y	Original series
y_f	Forecasts of the original series
y_ef	Standard errors of the forecasts of the original series
y_c	Interpolated series
yc_f	Forecasts of the interpolated series
yc_ef	Standard errors of the forecasts of the interpolated series
y_lin	Linearised series (not transformed)
l	Linearised series (transformed)
ycal	Series corrected for calendar effects
ycal_f	Forecasts of the series corrected for calendar effects
l_f	Forecasts of the linearised series
l_b	Backcasts of the linearised series
t	Trend (including deterministic effects)
t_f	Forecasts of the trend
sa	Seasonally adjusted series (including deterministic effects)
sa_f	Forecasts of the seasonally adjusted series
s	Seasonal component (including deterministic effects)
s_f	Forecasts of the seasonal component
i	Irregular component (including deterministic effects)
i_f	Forecasts of the irregular component
det	All deterministic effects
det *_f*	Forecasts of the deterministic effects
cal	Calendar effects
cal *_f*	Forecasts of the calendar effects
tde	Trading day effect
tde_f	Forecasts of the trading day effect
mhe	Moving holidays effects
mhe_f	Forecasts of the moving holidays effects
ee	Easter effect
ee_f	Forecasts of the Easter effect
omhe	Other moving holidays effects
omhe_f	Forecasts of the other moving holidays effects
out	All outliers effects
out_f	Forecasts of all outliers effects
out_i	Outliers effects related to irregular (AO, TC)
out_i_f	Forecasts of outliers effects related to irregular (TC)

Code	Meaning
out_t	Outliers effects related to trend (LS)
out_t_f	Forecasts of outliers effects related to trend (LS)
out_s	Outliers effects related to seasonal (SO)
out_s_f	Forecasts of outliers effects related to seasonal (SO)
reg	All other regression effects
reg_f	Forecasts of all other regression effects
reg_i	Regression effects related to irregular
reg_i_f	Forecasts of regression effects related to irregular
reg_t	Regression effects related to trend
reg_t_f	Forecasts of regression effects related to trend
reg_s	Regression effects related to seasonal
reg_s_f	Forecasts of regression effects related to seasonal
reg_sa	Regression effects related to seasonally adjusted series
reg_sa_f	Forecasts of regression effects related to seasonally adjusted series
reg_y	Separate regression effects
reg_y_f	Forecasts of separate regression effects
$fullresiduals$	Full residuals of the RegARIMA model
$decomposition.y\_lin$	Linearised series used as input in the decomposition
$decomposition.y\_lin\_f$	Forecast of the linearised series used as input in the decomposition
$decomposition.t\_lin$	Trend produced by the decomposition
$decomposition.t\_lin\_f$	Forecasts of the trend produced by the decomposition
$decomposition.s\_lin$	Seasonal component produced by the decomposition
$decomposition.s\_lin\_f$	Forecasts of the Seasonal component produced by the decomposition
$decomposition.i\_lin$	Irregular produced by the decomposition
$decomposition.i\_lin\_f$	Forecasts of the irregular produced by the decomposition
$decomposition.sa\_lin$	Seasonally adjusted series produced by the decomposition
$decomposition.sa\_lin\_f$	Forecasts of the seasonally adjusted series produced by the decomposition
$decomposition.si\_lin$	Seasonal-Irregular produced by the decomposition
$decomposition.x-tables.y$	For X-13ARIMA-SEATS only. Series from the X-11 decomposition (x = a, b, c, d, e; y=a1...)
$benchmarking.result$	Benchmarked seasonally adjusted series
$benchmarking.target$	Target for the benchmarking

The CSV matrix of JDemetra+ may contain:

Code	Meaning
span.start	Start of the series span
span.end	End of the series span
span.n	Length of the series span
espan.start	Start of the estimation span
espan.end	End of the estimation span
espan.n	Length of the estimation span
likelihood.neffectiveobs	Number of effective observations in the likelihood
likelihood.np	Number of parameters in the likelihood
likelihood.logvalue	Log likelihood
likelihood.adjustedlogvalue	Adjusted log likelihood
likelihood.ssqerr	Sum of the squared errors in the likelihood
likelihood.aic	AIC statistics
likelihood.aicc	Corrected AIC statistics
likelihood.bic	BIC statistics
likelihood.bicc	BIC corrected for length
residuals.ser	Standard error of the residuals (unbiased, TRAMO-like)
residuals.ser − ml	Standard error of the residuals (ML, X-13ARIMA-SEATS-like)
esiduals.mean	Test on the mean of the residuals
residuals.skewness	Test on the skewness of the residuals
residuals.kurtosis	Test on the kurtosis of the residuals
residuals.dh	Test on the normality of the residuals (Doornik-Hansen tests)
residuals.lb	The Ljung-Box test on the residuals
residuals.lb2	The Ljung-Box test on the squared residuals
residuals.seaslb	The Ljung-Box test on the residuals at seasonal lags
residuals.bp	The Box-Pierce test on the residuals
residuals.bp2	The Box-Pierce test on the squared residuals
residuals.seasbp	The Box-Pierce test on the residuals at seasonal lags
residuals.nruns	Test on the number of runs of the residuals
residuals.lruns	Test on the length of runs of the residuals
mstatistics.m1	The relative contribution of the irregular over three months span
mstatistics.m2	The relative contribution of the irregular component to the stationary portion of the variance
mstatistics.m3	The amount of period to period change in the irregular component as compared to the amount of period to period change in the trend-cycle
mstatistics.m4	The amount of autocorrelation in the irregular as described by the average duration of run

Code	Meaning
$mstatistics.m5$	The number of periods it takes the change in the trend- cycle to surpass the amount of change in the irregular
$mstatistics.m6$	The amount of year to year change in the irregular as compared to the amount of year to year change in the seasonal
$mstatistics.m7$	The amount of moving seasonality present relative to the amount of stable seasonality
$mstatistics.m8$	The size of the fluctuations in the seasonal component throughout the whole series
$mstatistics.m9$	The average linear movement in the seasonal component throughout the whole series
$mstatistics.m10$	The size of the fluctuations in the seasonal component in the recent years
$mstatistics.m11$	The average linear movement in the seasonal component in the recent years
$mstatistics.q$	Summary of the M-Statistics
$mstatistics.q-m2$	Summary of the M-Statistics without M2
$diagnostics.quality$	Summary of the diagnostics
$diagnostics.basic\ checks.\ definition$: 2	Definition test
$diagnostics.basic\ checks.\ annual\ totals$: 2	Annual totals test
$diagnostics.visual\ spectral\ analysis.\ spectral\ seas\ peaks$	Test of the presence of the visual seasonal peaks in SA and/or irregular
$diagnostics.visual\ spectral\ analysis.\ spectral\ td\ peaks$	Test of the presence of the visual trading day peaks in SA and/or irregular
$diagnostics.regarima\ residuals.\ normality$: 2	Test of the normality of the residuals
$diagnostics.regarima\ residuals.\ independence$: 2	Test of the independence of the residuals
$diagnostics.regarima\ residuals.\ spectral\ td\ peaks$: 2	Test of the presence of trading day peaks in the residuals
$diagnostics.regarima\ residuals.\ spectral\ seas\ peaks$: 2	Test of the presence of seasonal peaks in the residuals
$diagnostics.residual\ seasonality.\ on\ sa$: 2	Test of the presence of residual seasonality in the SA series
$diagnostics.residual\ seasonality.\ on\ sa\ (last\ 3\ years)$: 2	Test of the presence of residual seasonality in the SA series (last periods)
$diagnostics.residual\ seasonality.\ on\ irregular$: 2	Test of the presence of residual seasonality in the irregular series (last periods)
$diagnostics.seats.seas\ variance$: 2	Test on the variance of the seasonal component
$diagnostics.seats.irregular\ variance$: 2	Test on the variance of the irregular component
$diagnostics.seats.seas/irr\ cross-correlation$: 2	Test on the cross-correlation between the seasonal and the irregular component

Code	Meaning
log	Log transformation
$adjust$	Pre-adjustment of the series for leap year
$arima.mean$	Mean correction
$arima.p$	The regular autoregressive order of the ARIMA model
$arima.d$	The regular differencing order of the ARIMA model
$arima.q$	Regular moving average order of the ARIMA model
$arima.bp$	The seasonal autoregressive order of the ARIMA model
$arima.bd$	The seasonal differencing order of the ARIMA model
$arima.bq$	The seasonal moving average order of the ARIMA model
$arima.phi(i)$	Regular autoregressive parameter (lag=i, max i=3) of the ARIMA model
$arima.th(i)$	Regular moving average parameter (lag=i, max i=3) of the ARIMA model
$arima.bphi(i)$	Seasonal autoregressive parameter (lag=i, max i=1) of the ARIMA model
$arima.bth(i)$	Seasonal moving average parameter (lag=i max i=1) of the ARIMA model
$regression.lp$: 3	Coefficient and test on the leap year
$regression.ntd$	Number of trading day variables
$regression.td(i)$: 3	Coefficient and test on the i^{th} trading day variable
$regression.nmh$	Number of moving holidays
$regression.easter$: 3	Coefficient and test on the Easter variable
$regression.nout$	Number of outliers
$regression.out(i)$: 3	Coefficient and test on i^{th} the outlier (max i=16)
$decomposition.seasonality$	Presence of a seasonal component (1 – present, 0 – not present)
$decomposition.trendfilter$	The order of the trend filter
$decomoposition.seasfilter$	The order of the seasonal filter

7.8. Benchmarking

Benchmarking[227] is a procedure widely used when for the same target variable the two or more sources of data with different frequency are available. Generally, the two sources of data do not agree, as an aggregate of higher-frequency measurements is not necessarily equal to the less-aggregated measurement. Moreover, the sources of data may have different reliability. Usually it is

[227] Description of the idea of benchmarking is based on DAGUM, B.E., and CHOLETTE, P.A. (1994) and QUENNEVILLE, B. et all (2003). Detailed information can be found in: DAGUM, B.E., and CHOLETTE, P.A. (2006).