

rjdmardown with PDF output

```
library(rjdmardown)
```

For the moment the only functions developed are:

- `print_preprocessing()` for the pre-processing model;
- `print_decomposition()` for the decomposition.

The result is different between X-13ARIMA and TRAMO-SEATS models.

For PDF outputs, the package booktabs and float must be used.

```
header<-includes:  
- \usepackage{booktabs}  
- \usepackage{float}
```

```
library(RJDemetra)  
sa_x13 <- x13(ipi_c_eu[, "FR"])  
sa_ts <-tramoseats(ipi_c_eu[, "FR"])
```

X-13-ARIMA model

```
print_preprocessing(sa_x13, format = "latex")
```

Pre-processing (RegArima)

Summary

336 observations

Trading days effect (7 variables)

Easter [1] detected

3 detected outliers

Likelihood statistics

Number of effective observations = 323

Number of estimated parameters = 14

Loglikelihood = -624.720, AICc = 1278.803, BICc = 1.252

Standard error of the regression (ML estimate) = 1.665

ARIMA model

Table 1: ARIMA coefficients				
	Coefficients	Std. Error	T-stat	$\mathbb{P}(> t)$
Theta(1)	-0.527	0.048	-10.922	0
BTheta(1)	-0.487	0.051	-9.585	0
ARIMA (0,1,1)(0,1,1)				

Regression model

Table 2: Regression coefficientss

	Coefficients	Std. Error	T-stat	$\mathbb{P}(> t)$
Monday	-0.134	0.164	-0.818	0.414
Tuesday	-0.002	0.163	-0.015	0.988
Wednesday	0.242	0.163	1.479	0.140
Thursday	-0.531	0.163	-3.252	0.001
Friday	0.432	0.164	2.640	0.009
Saturday	0.153	0.163	0.936	0.350
Leap year	-0.046	0.501	-0.092	0.927
Easter [1]	-1.094	0.335	-3.269	0.001
LS (11-2008)	-8.442	1.307	-6.460	0.000
LS (1-2009)	-7.274	1.306	-5.568	0.000
LS (5-2008)	-5.020	1.257	-3.993	0.000
ARIMA (0,1,1)(0,1,1)				

```
print_decomposition(sa_x13, format = "latex")
```

Decomposition (X-11)

Mode: additive

Table 3: M-statistics

	Value	Description
M-1	0.061	The relative contribution of the irregular over three months span
M-2	0.034	The relative contribution of the irregular component to the stationary portion of the variance
M-3	0.840	The amount of period to period change in the irregular component as compared to the amount of period to period change in the trend
M-4	0.420	The amount of autocorrelation in the irregular as described by the average duration of run
M-5	0.697	The number of periods it takes the change in the trend to surpass the amount of change in the irregular
M-6	0.236	The amount of year to year change in the irregular as compared to the amount of year to year change in the seasonal
M-7	0.075	The amount of moving seasonality present relative to the amount of stable seasonality
M-8	0.206	The size of the fluctuations in the seasonal component throughout the whole series
M-9	0.055	The average linear movement in the seasonal component throughout the whole series
M-10	0.166	The size of the fluctuations in the seasonal component in the recent years
M-11	0.137	The average linear movement in the seasonal component in the recent years
Q	0.272	
Q-M2	0.301	

Final filters: M3x5, Henderson-13 terms

TRAMO-SEATS model

```
print_preprocessing(sa_ts, format = "latex")
```

Pre-processing (Tramo)

Summary

336 observations

Series has been log-transformed

Trading days effect (6 variables)

Easter [6] detected

3 detected outliers

Likelihood statistics

Number of effective observations = 323

Number of estimated parameters = 15

Loglikelihood = 875.751, AICc = 1262.750, BICc = -8.028

Standard error of the regression (ML estimate) = 0.016

ARIMA model

Table 4: ARIMA coefficients

	Coefficients	Std. Error	T-stat	$\mathbb{P}(> t)$
Phi(1)	0.352	0.256	1.376	0.170
Phi(2)	0.134	0.130	1.026	0.305
Theta(1)	-0.187	0.256	-0.728	0.467
BTheta(1)	-0.611	0.047	-13.010	0.000
ARIMA (2,1,1)(0,1,1)				

Regression model

Table 5: Regression coefficientss

	Coefficients	Std. Error	T-stat	$\mathbb{P}(> t)$
Monday	-0.002	0.002	-1.385	0.167
Tuesday	0.001	0.002	0.353	0.724
Wednesday	0.003	0.002	1.938	0.054
Thursday	-0.005	0.002	-3.342	0.001
Friday	0.003	0.002	2.010	0.045
Saturday	0.002	0.002	1.128	0.260
Easter [6]	-0.011	0.003	-3.201	0.002
LS (11-2008)	-0.079	0.013	-6.143	0.000
LS (1-2009)	-0.071	0.013	-5.509	0.000
AO (8-2001)	0.045	0.013	3.498	0.001
ARIMA (2,1,1)(0,1,1)				

```
print_decomposition(sa_ts, format = "latex")
```

Decomposition (SEATS)

Mode: multiplicative

Model

AR: $1 + 0.352B + 0.134B^2$

D: $1 - B - B^{12} + B^{13}$

MA: $1 - 0.187B - 0.611B^{12} + 0.114B^{13}$

SA

D: $1 - 2.000B + B^2$

MA: $1 - 1.314B + 0.340B^2$

Innovation variance: 0.467

Trend

D: $1 - 2.000B + B^2$

MA: $1 + 0.040B - 0.960B^2$

Innovation variance: 0.049

Seasonal

AR: $1 + 0.352B + 0.134B^2$

D: $1 + B + B^2 + B^3 + B^4 + B^5 + B^6 + B^7 + B^8 + B^9 + B^{10} + B^{11}$

MA: $1 + 0.718B + 0.461B^2 + 0.310B^3 + 0.132B^4 - 0.049B^5 - 0.217B^6 - 0.355B^7 - 0.445B^8 - 0.470B^9 - 0.377B^{10} - 0.166B^{11} - 0.411B^{12} - 0.133B^{13}$

Innovation variance: 0.160

Irregular

Innovation variance: 0.206