



RJDemetra: A R Interface To JDemetra+ Seasonal Adjustment Software

Anna Michalek
European Central Bank

Alain Quartier-La-Tente
Insee

Abstract

The abstract of the article.

Keywords: R, seasonal adjustment, time series.

1. Introduction

The package **RJDemetra** provides a R interface to the seasonal adjustment software JDemetra+. Note that, JDemetra+ being implemented in Java, **RJDemetra** relies on the **rJava** package and Java SE 8 or later version is required. The two leading seasonal adjustment methods TRAMO/SEATS+ and X-12ARIMA/X-13ARIMA-SEATS can be used with all the specifications defined in JDemetra+.

1.1. Seasonal adjustment in brief

Mention the two SA methods and the two steps of adjustment: pre-adjustment and the decomposition. Briefly present the differences in the decomposition.

1.2. Using the R package RJDemetra

The **RJDemetra** package allows to:

- create and modify model specifications
- create and modify models
- import/export workspaces

2. Estimate a predefined regarima and SA model

The package allows to estimate regarima and SA models using predefined specifications.

```
R> library(RJDemetra)
R> myseries <- ipi_c_eu[, "FR"]
R> mysa <- x13_def(myseries, spec=c("RSA5c"))
```

3. SA object structure

Table 1: SA object structure

Object	Level	Type	When adjusted with:	
			<i>x13/x13_def</i>	<i>tramoseats/tramoseats_def</i>
			Class	Class
sa_object	0	list	SA, X13	SA, TRAMO_SEATS
regarima	1	list	regarima, X13	regarima, TRAMO_SEATS
specification	2	list		
estimate	3	data.frame		
transform	3	data.frame		
regression	3	list		
userdef	4	list		
specification	5	data.frame		
outliers	5	data.frame or NA(empty)		
variables	5	list		
series	6	mts, ts, matrix or NA(empty)		
description	6	data.frame or NA(empty)		
trading.days	4	data.frame		
easter	4	data.frame		
outliers	3	data.frame		
arima	3	list		
specification	4	data.frame		
coefficients	4	data.frame or NA(empty)		
forecast	3	data.frame		
span	3	data.frame		
arma	2	vector - numeric		
arima.coefficients	2	matrix		
regression.coefficients	2	matrix		
loglik	2	matrix		
model	2	list		
spec_rslt	3	data.frame		
effects	3	mts, ts, matrix		
residuals	2	ts		
residuals.stat	2	list		
st.error	3	numeric		
tests	3	data.frame	regarima_rtests, data.frame	
forecast	2	mts, ts, matrix		
decomposition	1	list	decomposition_X11	
specification	2	data.frame	X11_spec, data.frame	
mode	2	character		
mstats	2	matrix		
si_ratio	2	mts, ts, matrix		
s_filter	2	vector - character		
t_filter	2	character		
decomposition	1	list		decomposition_SEATS
specification	2	data.frame	seats_spec, data.frame	

mode	2	character	
model	2	list	
model	3	matrix or empty list	
sa	3	matrix or empty list	
trend	3	matrix or empty list	
seasonal	3	matrix or empty list	
transitory	3	matrix or empty list	
irregular	3	matrix or empty list	
linearized	2	mts, ts, matrix	
components	2	mts, ts, matrix	
final	1	list	final
series	2	mts, ts, matrix	
forecasts	2	mts, ts, matrix	
diagnostics	1	list	diagnostics
variance_decomposition	2	data.frame	
combined_test	2	list	combined_test
tests_for_stable_seasonality	3	data.frame	
combined_seasonality_test	3	character	
residuals_test	2	data.frame	
user_defined	1	list	user_defined

3.1. Regarima

Here we can also present the output: print and graphs.

```
R> library(RJDemetra)
R> myseries <- ipi_c_eu[, "FR"]
R> mysa <- x13_def(myseries, spec=c("RSA5c"))
R> mysa$regarima
```

```
y = regression model + arima (0, 1, 1, 0, 1, 1)
```

```
Log-transformation: no
```

```
Coefficients:
```

	Estimate	Std. Error
Theta(1)	-0.5270	0.048
BTheta(1)	-0.4865	0.051

	Estimate	Std. Error
Monday	-0.133839	0.164
Tuesday	-0.002384	0.163
Wednesday	0.241712	0.163
Thursday	-0.531275	0.163
Friday	0.432474	0.164
Saturday	0.152956	0.163
Leap year	-0.045977	0.501
Easter [1]	-1.094082	0.335
LS (11-2008)	-8.441602	1.307
LS (1-2009)	-7.274012	1.306
LS (5-2008)	-5.020079	1.257

Residual standard error: 1.665 on 323 degrees of freedom

Log likelihood = -624.7, aic = 1277 aicc = 1279, bic(corrected for length) = 1.252

3.2. Decomposition

3.3. Final

3.4. Diagnostics

3.5. user defined

4. Model specification: creation and modification

The model specification can be defined from an existing model specification or an estimated model, as each of the estimated model contains also its specification.

4.1. X13

4.2. TRAMOSEATS

4.3. Regarima

4.4. Wrong specifications corrections

Parler des corrections automatiques ?

5. Gestion d'un workspace

Mise en garde sur ce que l'on ne peut pas faire (problèmes d'imports)

Affiliation:

Journal of Statistical Software

published by the Foundation for Open Access Statistics

MMMMMM YYYY, Volume VV, Issue II

[doi:10.18637/jss.v000.i00](https://doi.org/10.18637/jss.v000.i00)

<http://www.jstatsoft.org/>

<http://www.foastat.org/>

Submitted: yyyy-mm-dd

Accepted: yyyy-mm-dd
