# JDemetra+: Java tool for Seasonal Adjustment

Dario Buono*
Eurostat, European Commission, Luxembourg, Luxembourg – dario.buono@ec.europa.eu


Dominique Ladiray
INSEE, Paris, France – dominique.ladiray@insee.fr

## Abstract

Seasonal adjustment is an important step of the official statistics business architecture and harmonisation of practices has proved to be key element of quality of the output. In this spirit, since the 90s, the Seasonal Adjustment Expert Group (the Eurostat-ECB high level group of experts from NSIs and NCBs which has produced the ESS Guidelines for seasonal adjustment) has been playing a role in the promotion, development and maintenance of a software solution freely available for seasonal adjustment in line with established best practices.

JDemetra+ is a tool for seasonal adjustment (SA) developed by the National Bank of Belgium (NBB) in cooperation with the Deutsche Bundesbank and Eurostat in accordance with the Guidelines of the European Statistical System (ESS). User support, training and methodological development is provided by the devoted Centre of Excellence on Seasonal Adjustment coordinated by INSEE, the French National Statistical Office.
JDemetra+ has been officially recommended, since February 2015, to the members of the ESS and the European System of Central Banks as software for seasonal and calendar adjustment of official statistics.

JDemetra+ implements the concepts and algorithms used in the two leading SA methods: TRAMO/SEATS and X-12ARIMA. Those methods have been re-engineered using an object-oriented approach that enables easier handling, extensions and modifications. Besides seasonal adjustment, JDemetra+ bundles other time series models that are useful in the production or analysis of economic statistics, including for instance outlier detection, nowcasting, temporal disaggregation or benchmarking. From a technical point of view, JDemetra+ is a collection of reusable and extensible Java components, which can be easily accessed through a rich graphical interface. The software is a free and open-source software (FOSS) developed under the EUPL licence.
In this presentation, features and applications will be shown.

**Keywords:** Seasonal Adjustment; Time Series; Econometrics, Outliers.

**References**
ESS guidelines on seasonal adjustment (2015 edition, Eurostat)
http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-15-001

Community portal, http://ec.europa.eu/eurostat/cros/content/seasonal-adjustment_en

For downloading https://github.com/jdemetra/jdemetra-app/releases