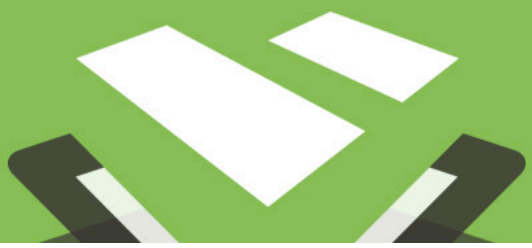
# OpenBudgets.eu



**OpenBudgets.eu is an EU-funded project, aiming to support journalists, civil society organisations, NGOs, citizens and public administrations, by providing an overview of public budget and spending data as well as related tools and stories, thus serving advocacy and fiscal transparency objectives.**

Openness and transparency can act as a disincentive to corruption. The current lack of open budget and open transaction data makes it very hard for citizens and other stakeholders to get an overview on public spending. The comparison of budgets between administrative regions and other government levels proves even more difficult.

The OpenBudgets.eu platform is designed for public administrations, citizens, NGOs, media organisations, public service companies, and stakeholders working with fiscal data. The key challenge is to provide a scalable platform that is easy-to-use, flexible, and attractive for all these different types of users.

# Fiscal Data Mining Tools

As part of the OpenBudgets.eu solution a series of data mining tools have been developed, resulting in novel and powerful ways to gain insights into budget data.

### 1. Descriptive statistics

This class of tools helps users visualize clearly information derived from raw datasets, such as mean, range, variation, correlation, skewness, kurtosis, histogram, etc. Elegant graphical interfaces are provided. The tools are implemented in R and are freely available at https://github.com/okgreece/DescriptiveStats.OBeu

### 2. Time series analysis, prediction

This class of tools analyses stable patterns among a series of datasets within a specific time period and predicts possible patterns of future datasets in the same series. User-friendly graphical interfaces are provided. The tools are implemented in R and are freely available at https://github.com/okgreece/TimeSeries.OBeu

### 3. Clustering and similarity learning

European budget data may have internal patterns at different granularity levels. The tools in this class are aimed at grouping data items from different perspectives. Nice graphical interfaces are provided. The tools are implemented in R and are freely available at https://github.com/okgreece/Cluster.OBeu

### 4. Comparative analysis

The aim of this tool is to compare two or more (comparable) processes and data models. This tool calculates comparable matrices which evaluate the implemented models. Nice graphical interfaces are available.

### 5. Rule/pattern mining

This data-mining tool identifies association rules among several attributes of datasets. Rule-mining constitutes one of the basic tasks in the data-mining field, which can identify new knowledge in the input datasets. This tool is implemented in the web data-mining system EasyMiner (http://easyminer.eu).

### 6. Outlier/anomaly detection

This class of tools aims at identifying outlier data items in the user-selected datasets. Two outlier-detection tools are implemented, one is based on frequency, the other is based on local density. These two tools are implemented in R and Python respectively and are free for public access: https://github.com/jaroslav-kuchar/fpmoutliers (R) https://github.com/openbudgets/outlier_dm (Python)

*These tools have been developed by University of Economics Prague, Fraunhofer IAIS, University of Bonn, Open Knowledge Greece, on behalf of the Horizon 2020 funded research project* **OpenBudgets.eu**. *Contact: Alexandra Garatzogianni (Consortium Project Manager) Alexandra.Garatzogianni@iais.fraunhofer.de*

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