

INSTITUTO NACIONAL DE ESTADISTICA



Industrial Turnover Indices

Methodological Manual

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Subdirectorato-General for Short-Term
Statistics

9 Industrial Turnover Indices adjusted for seasonal and calendar effects

The Industrial Turnover Indices are published in base 2021 and adjusted for seasonal and calendar effects.

These indicators were published in base 2005 adjusted for calendar effects, and from the base 2010, they are also published adjusted for seasonal effects.

The seasonal adjustment of these indicators is carried out in accordance to the *INE Standard for adjusting seasonal and calendar effects in short-term series*¹ that is available in INEbase. This standard follows the European Union recommendations contained in the ESS guidelines on seasonal adjustment.

The series adjusted for calendar effects and the series adjusted for seasonal and calendar effects are obtained with the JDemetra+ software (version 2.2.2)², from the publication of data in base 2021. JDemetra+ has been officially recommended by Eurostat since February 2015 for performing seasonal and calendar adjustments in the official statistics of the European Union.

The time series analysis methodology recommends a periodic review of models to incorporate the most current information. This means that the series adjusted for calendar effects and for seasonal and calendar effects are always provisional.

9.1 Indices adjusted for calendar effects

The European Regulation regarding European business statistics, for the purpose of harmonising all of the indicators compiled by the different European Union countries and achieving the greatest comparability possible, asks that the indices be provided in net terms, that is, eliminating the calendar effect, among others.

The calendar effect is defined as the impact produced in the time series of a variable, due to the different structure that the months (or quarters) present in the different years (in both length and composition), even if the remaining factors influencing said variable remain constant.

The length of the month is not completely absorbed by the seasonal component, since the number of days in February is not the same each year. This non-seasonal part of the component of the length of the month must be eliminated in the series adjusted for the calendar effect.

On the other hand, the composition of the month refers to the variations in Industrial Turnover caused by the different number of public holidays in the same month in different years and the week days, ie, Mondays, Tuesdays, etc., of the same month in consecutive years.

The method used to adjust calendar effects is based on regARIMA models (regression models with stationary ARIMA errors), following the INE Standards and Eurostat recommendations. Particularly, regARIMA models with centered regressors have been used for the calendar effect covering the three following effects:

¹ http://www.ine.es/en/clasifi/estandar_efectos_estacionales_en.pdf

² <https://github.com/jdemetra/jdemetra-app/releases/tag/v2.2.2>

