METHODOLOGICAL EXPLANATIONS

1. The data source is the PROD (Industrial products and services) chapter of the monthly statistical survey on short-term indicators in industry (IND TS), in accordance with Council Regulation (EC) No 1165/1998, Regulation (EC) No 1158/2005 of the European Parliament and of the Council, and Commission Regulation (EC) No 1503/2006 concerning short-term statistics.
2. The statistical survey is a sample survey. The stratified sampling with simple random selection without replacement within each stratum, where the stratification variables are the economic activity and the size class of the enterprise according to the number of employees, is used as type of sampling and as procedure for drawing the sample. Due to the need for comparability of results by groups of homogenous activities as well as at enterprise level from one period to another, the category of economic operators with a high economic potential (50 or more employees) is surveyed exhaustively. The sampling frame ensures a degree of representativeness (calculated according to turnover) of 94.21% of the total number of active units. The data are collected from approximately 10200 economic operators that have industry as their main activity. The maximum accepted estimation error is ±3%.
3. Concepts and definitions. The industrial production index is known as an output index or a production volume index which aims to identify the changes in the production volume. Industrial production indices measure the evolution of production overall, by CANE Rev. 2 sections (mining and quarrying, manufacturing and electricity, gas, steam and air conditioning supply) and divisions (divisions 05÷35, excluding group 353) as well as by main industrial groupings. The degree of coverage for industry overall is 89.8%.

The nomenclatures used in the calculation of the industrial production index are:

- *Classification of the Activities of the National Economy (CANE Rev. 2)*
- *Classification of Products and Services related to Activities (CPSA 2008)*
- *Main industrial groupings* (intermediate goods, capital goods, consumer durables, consumer non-durables, energy), which represent an aggregate of CANE Rev. 2 divisions or groups used in European statistics to characterise industry according to the purpose of the goods produced

Intermediate goods include the following CANE Rev. 2 divisions and groups, respectively: 07, 08, 09, 106, 109, 131, 132, 133, 16, 17, 201, 202, 203, 205, 206, 22, 23, 24, 255, 256, 257, 259, 261, 268, 271, 272, 273, 274, 279.
Capital goods include the following CANE Rev. 2 divisions and groups, respectively: 251, 252, 253, 254, 262, 263, 265, 266, 28, 29, 301, 302, 303, 304, 325, 33.
Consumer durables include the following CANE Rev. 2 divisions and groups, respectively: 264, 267, 275, 309, 31, 321, 322.
Consumer non-durables include the following CANE Rev. 2 divisions and groups, respectively: 101, 102, 103, 104, 105, 107, 108, 11, 12, 139, 14, 15, 18, 204, 21, 323, 324, 329.
Energy includes the following CANE Rev. 2 divisions and groups, respectively: 05, 06, 19, 351, 352.

- *PRODROM (Industrial products and services list)* – used in the collection of data on industrial production; it is fully harmonised with the nomenclature used in EU countries, namely the PRODCOM list. The positions within the PRODROM result from the breakdown of the elementary subclasses of CPSA 2008. All PRODROM positions are at the same level, the potential groups requested for analysis and dissemination purposes being obtained by means of processing, on the basis of the structuring criteria used to define each position.

The industrial products list (PRODROM) includes 3400 products and characterises the industrial activities from CANE Rev. 2 sections B, C and D.
The CPSA elementary subclass level is the first level in the calculation of the IPI. The 3400 PRODROM products are aggregated into 1162 CPSA elementary subclasses, of which 777 are taken into account for the calculation of the IPI.

- *Nomenclature of economic operators* – it monthly provides data on physical industrial production; it includes a representative sample of enterprises that have industry as their main activity (CANE Rev. 2: 05÷35) and is made up of all enterprises with 50 or more employees and of a sample of enterprises whose number of employees ranges from 4 to 49, so as to ensure a degree of representativeness of approximately 90% for industry overall and at least 80% at the level of CANE Rev. 2 divisions, representativeness calculated on the basis of turnover.

For a better representation of food industry, due to the specific nature of this sector, the sample of industrial enterprises also includes the trading companies which have agriculture as their main activity, but which have subunits specialised in making agro-food products.

4. Calculation algorithm

The aggregation of the first indices of industrial production is done through a system of successive weightings, using, for the aggregation at the level of CPSA elementary subclasses (higher aggregation level of PRODROM), the unit average price of the base year (2010) and, for the higher aggregation levels (CANE Rev. 2 class, group, division, section, or main industrial grouping), as a weighting element, the base-year (2010) gross value added at factor cost (GVAFC), according to the results of the Structural Business Survey of the base year (2010). The first aggregation level is the CANE Rev. 2 class level, the next aggregation levels being determined as an arithmetic mean of the indices of CANE Rev. 2 classes, groups, divisions, sections, of main industrial groupings, weighted by the corresponding GVAFC of the base year (2010). The indices for the main industrial groupings are obtained by aggregating the indices at the level of CANE Rev. 2 component groups, weighted by the corresponding GVAFC. The industrial production indices for industry overall are obtained by aggregating the indices calculated at the level of CANE Rev. 2 divisions.

5. Beside the gross indices of industrial production, indices that are adjusted by number of working days and seasonality are also calculated on a monthly basis, through the regressive method, a method recommended by the European regulations concerning short-term indicators (Council Regulation No 1165/1998).
In order to adjust the series, the JDEMETRA+ v2.0 software package (the TRAMO/SEATS method) has been used from 2016 onwards, which estimates the effect of the number of working days, which differs from one month to another, and the calendar effect (leap years and other national holidays), identifies and corrects the outliers (occasional, transitory or permanent changes in level) and interpolates the missing values.
The series adjusted by number of working days was obtained by removing these effects from the gross series, by means of correction coefficients determined depending on the regression model used (additive or multiplicative).
The setting of the regression models to be used for each series takes place at the beginning of each year and involves the recalculation of the adjusted series that were calculated the previous year (recalculation due to changes in the models adopted, in the number of regressors used and in the number of available observations).
The adjustment of the aggregated levels was made through the direct method, which involves the direct adjustment of the aggregated series. The use of the direct method may lead to inconsistencies in the data series (namely, the aggregates are not always comprised between the values of the components they come from).

6. The data are provisional and can be revised periodically on the basis of rectifications performed retroactively by the economic operators included in the sample.