Industrial Production Index

Objectives

Industrial production indices calculation answer to a national and a European imperative. Industrial production indices fall under the European regulation on short-terms statistics – the Council Regulation ''STS'' No 1165/98 of 19 May 1998, modified by subsequent amendments.

Industrial production indices are used to measure the monthly changes of industrial and construction activities in France. As such, they are a primary information to monitor the business cycle in France and to identify turning points at an early stage, in parallel or along with other macroeconomic indicators such as employment statistics, prices indices, the Services Production Index or foreign trade statistics.

Otherwise, industrial production indices are one of the sources used to elaborate French quarterly accounts – for example the GDP flash estimate.

Fields cover by the index

Industrial production indices – IPI – are calculated for the industry and the construction sectors. They cover the sections B, C, D and E of the NAF rev. 2 for industry and the sector F for construction.

Dissemination

Industrial production indices are monthly disseminated at the latest 40 days after the month under review, according to a release schedule announced four months in advance.

In the “Informations Rapides”, indices are available at levels A 10, A 17 and A 38 of the aggregate classification – NA – associated with the NAF rev. 2. They are also disseminated according to the Main Industrial Groupings – MIG – defined by Eurostat. More detailed levels – divisions, groups and classes in the NAF rev. 2 – are also available on the INSEE database. Both unadjusted and seasonally and working-days adjusted (SA-WDA) indices are available :

https://www.insee.fr/en/information/2868059

Industrial production indices are transmitted to Eurostat and available on its website along with those of all European countries.

Sources

Industrial production indices are computed by INSEE and are based on a business survey, which is carried out by INSEE, the statistical service of the Ministry of Agriculture, the statistical service of the Ministry of Ecological Transition and other professional organizations. Monitored products are located at all levels of the manufacturing process in order to provide a good representation of the whole industrial activity.

Methodology

The methodology on which industrial production indices are based is gradually harmonized within the European Union. It has led to the publication of various manuals, such as “Methodology of Short-Term Statistics” (Eurostat, 2006), “International Recommendations for the Index of Industrial Production” (ONU, 2010), “Final Report – Task Force Chain-Linking in STS” (Eurostat, 2012) or “ESS guidelines on seasonal adjustment” (Eurostat, 2015).

In France, the calculation of the IPI is based on 520 elementary series, corresponding to clusters of industrial products whose production is obtained from a sample of about 4,800 companies. Aggregated indices are from now on annual chain-linked Laspeyres indices with 2015 as reference year (see *infra*).

Despite its name, the IPI theoretically aims to account for changes in value added rather than production. The weights used for index aggregation are therefore calculated using gross value added data from national accounts.

Rebasing and reference change to 2015

From now on, Industrial production indices have reference year 2015, which means that they have for average 100 in 2015. Previously, indices had reference year 2010.

The 2015 rebasing implements an important innovation, with the introduction of annually chained indices instead of fixed-weights indices. Thus, until now, aggregation of elementary indices was done on the basis of constant weights representing the reference year – i.e. 2010 previously. This method could lead to increasing distortions for the most distant periods from the base year. In order to reduce those distortions, the UN and Eurostat recommend to update weights annually. It is then necessary to link the indices from one year to the next, hence the final name. Three commonly used methods for chain-linking were studied in the context of the Eurostat "Chain-linking" task force. INSEE chose the annual overlap method for calculating the IPI.

Other indices, such as "production price indices", already used this type of annual chaining. Coherence between the IPI and structural statistics – including national accounts – is strengthened, although gaps remain due to differences in the data sources and calculation methods.

The estimation of annual weights is based primarily on the gross value added at basic prices per branch calculated by the annual national accounts. By definition, value added at basic prices excludes taxes on products but includes subsidies on products. It does not include transport services. At the lower levels of the industry classification, weights are also based on INSEE's Esane device and the Annual Production Survey in the industry.

Finally, from 2019, the IPI industrial branches are reviewed at the rate of one fifth of the series each year. This annual update will make it possible to improve the relevance of the IPI with regards to the evolution of technologies and production processes, by including emerging products or, on the contrary, removing old products. The first annual review is implemented with the publication of March 2019 concerning the indices of January 2019. Three new indices have been introduced: Industrial manufacture of bread and fresh pastry, Manufacture of other articles of paper and paperboard and Pre-press and pre-media services. The adjusted series have been backward-reviewed from 2015. At an aggregated level, the revisions on indices are moderate. Nethertheless, some indices have been significantly revised resulting from an improving coverage or a modification of the measurement variable (for instance production sold in euros instead of quantities).

Seasonal variations and working days adjustments

Series are seasonally adjusted – SA – and working-days adjusted – WDA. The computation is performed with the X13-Arima program available in JDemetra+ - supplied by Eurostat – at the NAF rev. 2 class level. Upper SWDA levels are obtained by class level series aggregation (indirect SWDA correction).

With the publication of the indices of January 2019, SA-WDA models reestimated on a sub-period (since 2005) are now used to adjust indices on the recent past, in order to provide improved fit and better robustness (SA-WDA models were until now estimated on the whole period, i.e. 1990 to 2019).

The annual mean of SWDA indices may slightly differ from that of the unadjusted indices, mainly because it takes into account the variations from one year to the next of the annual composition in working days – presence of leap year, position in the week of the various bank holidays, etc.

Revisions

Responses from firms questioned in branch surveys are not always fully available when the index is first published. An estimation is then made, pending the arrival and integration of these late responses in the following months. This leads to revise raw data and SWDA indices.

Otherwise, INSEE conducts annual surveys that provide more detailed and complementary results for the year preceding the last period covered by the IPI. Data of both sources are then confronted, which can result in revisions of the IPI indices.

At last, models used to correct seasonal and calendar effects are updated annually. Between two model updates, SWDA coefficients are updated monthly in order to take into account the most recent data – this includes raw data rectifications related to the previous months. At each publication, all SWDA indices disseminated on the INSEE website are updated from 1990.