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INDUSTRIAL PRODUCTION INDEX

Updating of the calculation basis

- The monthly industrial production index is calculated using the chaining method introduced by the publication of the indices relating to the month of January 2022. From January 2025, the calculation base is set at the year 2024, while the reference base, in line with the other economic indicators, remains the year 2021. The methodological aspects and the main effects produced by the rebasing on the evolution of the indices are illustrated in this information note.
- The innovations introduced, in continuity with the 2023 calculation base, concern the sources used, with an increase in the sectors for which the turnover volume indices are used, the updating of the sample of companies, the revision of the weighting system, the updating of the basket of goods.
- The indices are calculated according to the Laspeyres formula using a weight structure updated annually. The indices, elaborated on the basis of calculation, are subsequently brought back to the reference base.
- In the comparison between the weighting structures of the 2023 and 2024 calculation base, some variations in the weights for the different groupings emerge: a 0.4% drop in the incidence of both consumer goods and capital goods corresponds to an increase in that of intermediate goods (+0.6%) and, to a lesser extent, energy (+0.2%). As for the 2023 base, the sectors with greatest relevance for the industrial production index are the metallurgy and metal product manufacturing industry (16.4%) and the manufacturing of machinery and equipment not classified elsewhere (12.6%).
- With the adoption of the 2024 calculation base, the product basket was also revised. Specifically, 83 products were eliminated, 65 of which were due to the integration of the survey data with those from the industrial turnover survey. At the same time, in order to increase coverage in the Ateco classes followed by the survey, 18 new products that had become significant over time were introduced. With the transition to the 2024 calculation base, therefore, the previous basket of 593 product macro-items was reduced to 584 items. With the exit from the basket of 38 macro-products, among the 29 that entered, 11 represent macro-product items that correspond to the indices of the economic activity groups detected by the turnover survey.
- The industrial production indices starting from 1990 and up to the economic activity class level with a reference base of 2021=100 are published on the IstatData website at https://esploradati.istat.it. Calculation based data is available upon request.

CHART 1. INDUSTRIAL PRODUCTION INDEX. January 2024-december 2024, percentage changes on the same month of the previous year, data adjusted for calendar effects.

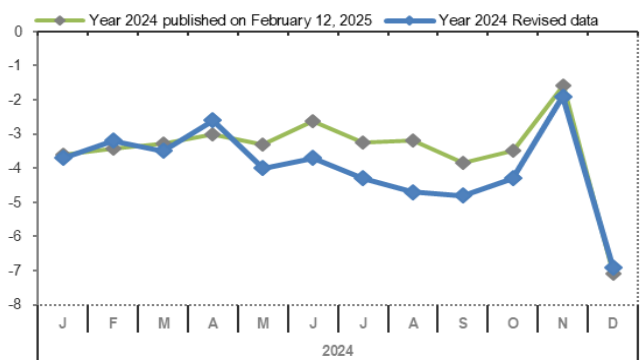

TABLE 1. INDUSTRIAL PRODUCTION INDEX. Comparison between the weighting structure of link period 2023 and 2024.

MAIN INDUSTRIAL GROUPINGS	Link period 2023	Link period 2024
Consumer goods	24.8350	24.4123
Consumer durable goods	4.0910	4.0157
Consumer non-durable goods	20.7439	20.3966
Capital goods	28.6116	28.2451
Intermediate goods	34.4035	35.0074
Energy	12.1500	12.3353
Total	**100.0000**	**100.0000**

Industrial production index

The industrial production index measures the change of the volume of goods produced over time by industry (excluding construction).

The aim is to provide an estimate a high frequency indicator that is promptly available, of the evolution over time of the economic output in the industrial sector, measured in gross production terms.

Gross production is estimated through the *proxy* variable approach, the proxies used allow to represent the target variable accurately and they are easily measureable on a monthly basis by enterprises. This helps to reduce the statistical burden on businesses. The *proxies* used to catch the evolution of production are: the physical quantities of each individual output (different production processes use different units of measurement), the deflated output value and the hours worked (corrected using a labour productivity indicator).

For the indices of the year 2025, the calculation base is set at the year 2024 while the reference base in line with other economic indicators, remains at 2021.

The innovations introduced are recommended by main methodological manuals and by Eurostat[1]. In detail, they concern the introduction of the new weighting system, the renewal of the sample of companies used in the survey, the updating of the basket of goods.

Monthly enterprises provide detailed information on industrial output referred to a basket of representative goods, of all the productive activities present in the Italian industry. Aggregated data are then used to calculate individual product indicators.

The data received, appropriately aggregated, give rise to the index numbers relating to the individual product items. The elementary indices are then summarized by economic activity, according to the Laspeyres formula, using a weight structure that reflects the sectoral distribution of industrial added value in the base year of calculation (2024 in the current version). In more detail, for each level of aggregation, the first slip coefficient of the series is represented by the average of the indices relating to the year 2021 based on 2021, while for subsequent years, by the product of the latter by the annual averages of the indices based on the calculation of each year following 2021 up to the year preceding the current one.

From a quality perspective, the new chain-linking approach is expected to provide more accurate estimates. In particular:

- more frequent update of the weighting structure will limit the loss of representativeness of the base and the timeliness of the weights reflecting the industrial production structure;
- updating the sample of enterprises allows monitoring enterprises' births and deaths more effectively, enabling a more frequent sample rotation too;
- annual update of basket of goods will allow to quickly detect new relevant products and remove obsolete items.

Besides these advantages, chain-linking have drawbacks both for the user and for the producer of statistics. For users, disadvantage of chain-linked estimates is non-additivity that causes greater complexity to analyse aggregates that are not in the dissemination plan, based on the current classification scheme; for producers, the adoption of chain-linking requires a considerable additional commitment to monitor the sample of enterprises and the basket of goods.

The new calculation method based upon chain-linking

The European regulation on short-term statistics recommends the adoption of chain-linking method whenever the economic structure is developing fast. For those sectors where relative prices do not change significantly, the chain-linking method is still recommended to improve the quality of the indicator, overcoming typical limitations of a fixed-based index.

[1] Recommendations for the Index of Industrial Production 2010 (IRIIP 2010), Department of Economic and Social Affairs, International United Nations New York, 2013 - https://unstats.un.org/unsd/industry/docs/f107_edited.pdf.

Final Report Task Force Chain-Linking in STS- Doc Eurostat/G3 STS TF Chain-Linking SEP 2012 EN- https://t.ly/3SqO.

Chain-linking allows for a better representation of economic evolution, as it uses more up-to-date information on the weighting system, on the basket of goods and on enterprises. It also reduces the problem of revisions related to the five-yearly rebasing.

In order to achieve comparability of data across countries EU strongly advises countries willing to implement the annual update of weights in STS in combination with chain-linking to follow several recommendations regarding these common target methodologies.

With regard to the weighting structure, an annual update is recommended, while for the chain-linking of STS volume indices the recommended common target methodology is the annual *overlap technique* that implies compiling estimates for each reference period at the weighted annual average of the previous year, with subsequent linking through annual linking factors to scale the monthly data upward to the base year[2].

The indices of industrial production are constructed and disseminated at different levels of Ateco classification; both fixed-base indices and indices with different base periods are obtained starting from elementary indices.

The calculation of the chain-linking indices for different economic aggregates is performed at different processing levels.

At the first level, the elementary indices are calculated with reference to the link period, i.e. the ratios between current production flows in the month *i* and year *t* and the respective monthly bases of the year *t-1* (average flows of the previous year). In this phase of the calculation procedure, the value-form information is appropriately deflated using current prices, while coefficients are applied to data expressed in hours worked, which measure the evolution of productivity in the link period[3].

The second level of processing concerns a higher level of aggregation: these indices are weighted arithmetic averages (concatenated Laspeyres-type formula) which are obtained, for all aggregates, starting from elementary indices. The weighting structure is derived from a nested classification, where the sum of the weights of each aggregation level is equal to the weight of the overall index. Indices calculated at different aggregation level are subsequently brought back to the reference base using the respective rescaling coefficients.

Innovations on the sources used for survey

Starting from the implementation of the 2023 calculation base, for some sectors of economic activity, data from the monthly survey on industrial turnover are used, appropriately deflated with industrial production prices (volume indices). The innovation aims to reduce the statistical burden on companies, exploiting the synergies between surveys, without reducing the information capacity of the industrial production survey (IPI).

In particular, from the point of view of sectoral disaggregation, the turnover indices are available up to the Ateco groups (3 digits), while production reaches the Ateco classes (4 digits).

The analyzes carried out in order to integrate the data from the two surveys mainly concerned the Ateco classes coinciding with the Ateco groups, ensuring this possibility of maintaining the current information detail for users of the industrial production indices[4].

Last year this solution was adopted for 16 Ateco classes, while the replacement of the source was limited to 4 economic classes for which this coincidence is not achieved[5].

With the 2024 calculation base the innovation was extended to a further 11 Ateco classes.

[2] Chain-linking can be performed using either the short formula (average of the previous year's chained index) or the formula with link factors (averages of indices related to the link period) up to the latest base year.
[3] Compared to the fixed base, where the productivity coefficients are related to the base year, in chain-linking productivity is related to the previous year.
[4] For the classes coinciding with the ATECO groups, in other words, the replacement of the source does not lead to the elimination of the economic class indices from the diffusion.
[5] In these cases the information loss can be considered minimal because the replaced classes have a prevailing relative weight in the group in terms of added value.

The selection of the sectors was carried out based on several criteria:

- comparison of the temporal dynamics of the index series;
- representativeness of the company panels;
- ability/difficulty to follow products subject to frequent changes[6];
- units of measurement used for the survey;
- typology of the responding subjects.

In particular, 11 additional macro-product items have been introduced into the basket, for a total of 30, which correspond to the monthly turnover indices of the selected economic groups. These indicators are calculated in relation to the average of the previous year, with the aim of making the two information structures consistent from the point of view of the type of variation detected.

With the 2024 base, the incidence of the Ateco classes for which the source modification was carried out represents 10.8% of the overall weight (in terms of added value) of the economic sectors covered by the IPI survey.

Table 2 shows the list of the 11 sectors subject to the modification starting from the 2024 base.

TABLE 2. THE NEW ATECO SECTORS DETECTED THROUGH THE TURNOVER SURVEY

DESCRIPTION	Replaced classes	Replaced group	Division	Subsection
Processing and preserving of fish, crustaceans and mollusks	1020	102	10	CA
Manufacture of tobacco products	1200	120	12	CA
Manufacture of other wearing apparel and accessories (*)	1420	142	14	CB
Manufacture of basic pharmaceutical products	2110	211	21	CF
Manufacture of pharmaceutical preparations	2120	212	21	CF
Manufacture of optical instruments, magnetic and optical media and photographic equipment (*)	2670	267	26	CI
Manufacture of batteries and accumulators	2720	272	27	CJ
Manufacture of lighting equipment	2740	274	27	CJ
Manufacture of agricultural and forestry machinery	2830	283	28	CK
Manufacture of medical and dental instruments and supplies	3250	325	32	CM
Installation of industrial machinery and equipment	3320	332	33	CM

(*)The Ateco classes 1420 and 2760 are surveyed for the first time with the 2024 base.

The basket of goods

Similarly to what happened for the previous base, also for the 2024 base, the integration of data with turnover data has affected the number of the basket of Products and the Panel of companies included in the survey.

Starting from the 2024 base, the survey of industrial production is carried out at a panel of companies that provide monthly information relating to 939 products (of which 131 car models).

These products are grouped into homogeneous sets to form a basket of product items for which the elementary indices (macroproducts) are calculated, subsequently aggregated by classes, groups, divisions, subsections, Ateco sections and main industry groupings (RPI), up to the general index.

The list of detected products can be updated annually, based on the results of the Annual Survey of Industrial Production (ProdCom). The aim is to ensure that the most representative products are detected annually for each class of economic activity.

[6] These assessments refer to a different ability of the two surveys to intercept these dynamics. If on the one hand IPI respondents present greater difficulty in promptly reporting new products, the turnover data could overcome this criticality by being more connected to the accounting concepts of the business.

The renewal of the base, as is known, is the opportunity to make changes dictated by the need to keep the list of products updated, taking into account the real weight of the monitored products and at the same time reducing the response burden on companies.

Overall, 83 products were eliminated, 65 of which were due to the replacement of the source with the turnover (see Annex 1). At the same time, in order to increase coverage in the sectors followed by the survey, 18 new products that had become significant over time were introduced. With the transition to the 2024 calculation base, therefore, the previous basket of 593 product macro-items was reduced to 584 items. With 38 macro-products removed from the basket, among the 29 that entered, 11 represent fictitious macro-product items and correspond to the indices of the economic activity groups detected by the turnover survey (see Table 3).

TABLE 3. PRINCIPAL CHANGES ON THE PRODUCT PANEL

DESCRIPTION
ELIMINATED
Products belonging to turnover survey classes/groups
Vacuum cleaners
Clogs
Waxes and creams for leather, hides and footwear
Steam and dry irons
Car mats
Inner tubes
Coffee makers of any material, even enameled
Dryers for wood and other materials
Dryers for pulp, paper and cardboard
Paints
MERGE INTO OTHER PRODUCTS
Safes and security cabinets
Wires, strips, cords
Armored doors and gates
Steam cleaning and vacuuming machines for domestic use
Wire conductors
Polishers, vacuum cleaners, carpet cleaners, window cleaners for non-domestic use
Steam cleaning and vacuuming machines for non-domestic use
NEW
Products belonging to turnover survey classes/groups
Clasps, buckles, beads
Grids, nets, cages and other articles of aluminum not elsewhere classified
Safes, armoured doors, safes and cabinets
Parts of turbines
Wires for electrical purposes (conductors, wires, strips, cords, etc.)
Parts of electrical apparatus and devices for signaling, safety, control, command for railways, etc.
Space vehicles (including satellites) and their launch vehicles
Test benches for motors, generators, pumps, etc.
Yeasts
Prefabricated wooden buildings
Compound reagents for diagnostic or laboratory use, including paper impregnated or coated with reagents
Cardboard for cases of types GD, GT and SBS
Conveyor belts
Other printed matter not elsewhere classified
Machines for printing on packaging
Vacuum cleaners and cleaning machines for domestic use (including steam cleaners)
Vacuum cleaners and cleaning machines for non-domestic use (including steam cleaners)

With the update of the weighting structure, the incidence of the proxies used to measure the trend of industry output has changed compared to the previous base (Table 4).

As expected, the share - expressed in terms of the relative weight on the general index - of products recorded in value is growing to the detriment of the other two measures. The incidence of products recorded in quantity remains predominant, although it is decreasing compared to the previous base (from 73.6% to 70.5%), followed by products recorded in production value (18.9%), whose share, however, is increasing by almost 5 percentage points compared to the 2021 base. Finally, the incidence of products in hours worked is also decreasing (10.6%).

TABLE 4. PROXIES USED TO MEASURE PRODUCTS. Weighting structure of link period 2021, 2023 and 2024.

TYPE OF PROXY	Link period 2021	Link period 2023 (provisional)	Link period 2023 (revised)	Link period 2024 (provisional)
Physical quantities (a)	76.6	72.7	73.6	70.5
Hours worked	13.6	12.2	12.0	10.6
Value of production	9.8	15.1	14.4	18.9
TOTALE	100.0	100.0	100.0	100.0

(a) Include: Kilograms, Quintals, Tons, Kilowatts, Liters, Hectoliters, Hectahydrides, Pairs, Pieces, Meters, Square Meters, Cubic Meters.

The sample of enterprises

Net of the companies excluded from the survey following the replacement of the data with the turnover volume indices, the definition of the panel of companies included in the 2024 base is based on the analysis of the results from the annual ProdCom survey (in this specific case Prodcom 2023).

The panel update is performed with the aim of reconciling two objectives:

- maximizing coverage, in terms of production share, for each of the product groups considered;
- containing the response burden on companies.

The responding units are mostly selected among those with at least 20 employees. In order to reduce the statistical burden, an attempt is made to limit the presence of small-sized units in economic sectors where their presence is significant (such as in the milling and dairy industries).

With the new base, the companies excluded from the survey due to the replacement of the source with the turnover, or because they are no longer significant in the survey, or for their reduced employment size, exceed the new entries. In this case, the companies and their associated productions already monitored by the survey in the observation state move to the index state because they are representative of the products included in the basket defined for the new calculation base, considering those already detected and those included for the first time.

In summary, for the 2024 base, the companies that contribute to the calculation of the monthly industrial production index are 5,203, the responding units are 5,507, for a total of 9,234 monthly production flows.

TABLE 5. THE SAMPLE. Comparison between link period 2023 and 2024.

UNITS	AMOUNT		FLOWS BETWEEN LINK PERIOD		
	Link Period 2023	Link Period 2024	Outgoing from period 2023	Incoming from period 2023	Entering link period 2024
Enterprises	5,395	5,203	472	4,923	280
Respondent units[a]	5,705	5,507	434	5,271	236
Productions [b]	9,524	9,234	733	8,791	443

(a) Each company can have multiple responding units. It also includes the 19 responding units from turnover survey.

(b) Monthly flows provided for each single production (products by respondent units) .It also includes the 30 productions units from turnover survey.

The comparison between the 2023 and 2024 bases highlights the turnover of companies. The balance, as mentioned, is negative both among incoming and outgoing companies (280 against 472), and among the responding units (236 against 443), and for the number of productions detected monthly (443 against 733).

The result is contributed by the growth of the Ateco classes detected through the turnover indices, which determine 80% and 73% of the responding units and of the outgoing productions respectively.

Table 6 highlights the flows by sector of economic activity. The impact of the substitution of the source is widely visible in CF - Production of pharmaceutical products and pharmaceutical preparations and in CM - Other manufacturing industries, repair and installation of machinery and equipment. In the other sectors involved, such as CJ - Manufacture of electrical equipment and non-electrical household appliances and CK - Manufacture of machinery and equipment n.e.c., the phenomenon is partly offset by units entering the panel in Ateco classes other than those replaced. An increase in the flows detected in CH - Metallurgy and manufacture of metal products (excluding machinery and plant) and in CC - Wood, paper and printing industry is observed, and substantial stability in all the others.

In the numbers considered, sources different than enterprises are also included. In particular, the production survey makes use of other information such as:

- data from the monthly survey on livestock slaughtered for red and white meat conducted by Istat at authorized slaughterhouses;
- information from the Ministry of the Environment and Energy Security (MASE) for gas distribution;
- the values on electricity production that are provided by Terna, operator of the electricity transmission networks.

TABLE 6. THE PANEL. Comparison between link period 2023 and 2024 by economic sector.

ECONOMIC ACTIVITY		PRODUCTIONS (a)				
		Amount		Flows between different link periods		
		Link period 2023	Link period 2024	Outgoing from period 2023	Incoming from period 2023	Entering link period 2024
B	**Mining and quarrying**	10	10	0	10	0
C	**Manufacturing**	9,512	9,222	733	8,779	443
CA	Manufacture of food products, beverages and tobacco products	1,486	1,469	65	1,421	48
CB	Manufacture of textiles, apparel, leather and related products	1,164	1,134	74	1,090	44
CC	Manufacture of wood and paper products, and printing	587	606	12	575	31
CD	Manufacture of coke, and refined petroleum products	323	323	0	323	0
CE	Manufacture of chemicals and chemical products	767	768	22	745	33
CF	Manufacture of pharmaceuticals, medicinal chemical and botanical products	155	2	155	0	2
CG	Manufacture of rubber and plastics products, and other non-metallic mineral products	839	840	21	818	22
CH	Manufacture of basic metals and fabricated metal products (except machinery and equipment)	1,320	1,357	50	1,270	87
CI	Manufacture of computer, electronic and optical products, electro-medical equipment, measuring equipment and watches	102	109	2	100	9
CJ	Manufacture of electrical equipment and non-electric domestic appliances	375	351	65	310	41
CK	Manufacture of machinery and equipment n.e.c.	1,259	1,181	123	1,136	45
CL	Manufacture of transport equipment	530	578	8	522	56
CM	Other manufacturing, and repair and installation of machinery and equipment	605	494	136	469	25
D	**Electricity, gas, steam and air-conditioning supply**	2	2	0	2	0
Total		**9,524**	**9,234**	**733**	**8,791**	**443**

(a) Monthly flows provided for each single production (products by respondent units)

The weighting structure

The weighting system of industrial production indices is determined using different sources.

Weights of all aggregates, from economic activity classes (4-digit Ateco 2007) up to the total industry are calculated on the basis of the gross value added of factor costs measured by the SBS Frame statistical register and by the structural economic surveys that contributes to the ‘‘Enterprises economic indicators”.

For the definition of the weighting structure of the 2024 base, the most recent data available relate to the year 2022.

The source for calculating weighting coefficients for aggregating quantities of products to elementary indices is annual ProdCom survey on industrial production, currently referring to year 2023. Products selected for the link period 2024 were recoded[7] according to the ProdCom list corresponding to the Nace Rev. 2 classification and relative weights are derived from the total production value (net of any reuse).

Attribution of weights for each level of aggregation is based on the assumption that, at each level, the products and the economic activities surveyed are representative of those not involved in the survey, so that the total weight of the higher level is distributed among products.

The use of annual chain-linking implies the annual update of weights, therefore the latest releases of ProdCom and SBS Frame will be used for this purpose. The timeliness of the release of SBS causes a misalignment when compared to the industrial production index, consequently to guarantee the best representativity of the weighting structure, weights are also updated for the previous year. Based on the current schedule of data release, the weights will be updated as follows:

- for the provisional/revised indices of year *t*, ProdCom referring to year *t-2* and SBS Frame referring to year *t-3* will be used;
- for the annual revised indices of year *t*, ProdCom *t-1* and SBS Frame at *t-2* will be used.

The wheights update requires that for each *“year index”* two weighting structures will be calculated on two different ProdCom/SBS Frame datasets, one for the provisional and revised indices and one for the annually revised indices.

Together with the dissemination of the indices based on the 2024 calculation, the new weights are made available.

In Table 7, with regard to the large aggregates corresponding to the Main Industrial Groupings (RPI), a comparison is presented between the weighting structures for the 2023 calculation bases, in this case also proposed for the updated version, and 2024. There are drops in the incidence of consumer goods, especially durable goods, and capital goods, which correspond to an increase in the weight of intermediate goods and, to a lesser extent, energy.

TABLE 7. INDUSTRIAL PRODUCTION INDEX. Comparison between the weighting structure of base 2023 and base 2024.

MAIN INDUSTRIAL GROUPINGS	Link period 2023 (provisional)	Link period 2023 (revised)	Link period 2024 (provisional)
Consumer goods	24.8350	24.3658	24.4123
Durable	4.0910	3.9690	4.0157
Non-durable	20.7439	20.3968	20.3966
Capital goods	28.6116	28.2751	28.2451
Intermediate goods	34.4035	35.0216	35.0074
Energy	12.1500	12.3376	12.3353
Total	**100.0000**	**100.0000**	**100.0000**

[7] A correspondence table is defined annually, which links each single product detected by the monthly survey to one or more codes of the ProdCom list.

Comparing the weighting structure of the two bases at economic activity level appears useful to catch all changes occurred (Table 8).

At the macro-sector level, the weight of both section D - Supply of electricity, gas, steam and air conditioning (-1.0%) and section B - Mining activities (-0.6%) has decreased in favor of section C - Manufacturing activities (+1.6%).

Within this, the sectors that are gaining weight are CD - Manufacture of coke and refined petroleum products (+1.8%), followed by CC - Wood, paper and printing industry and CH - Metallurgy and manufacture of metal products (excluding machinery and equipment) (+0.5%) and to a lesser extent CB - Textile, clothing and leather industries (+0.4%). The decline, however, concerns CA - Food, beverage and tobacco industries (-0.7%), CK - Manufacture of machinery and equipment n.e.c. (-0.5%) and CE - Manufacture of chemical products (-0.4%).

However, the order of the sectors with greater importance on the industrial production index does not change, such as the metallurgy and metal product manufacturing industry and the manufacturing of machinery and equipment not classified elsewhere.

TABLE 8. INDUSTRIAL PRODUCTION INDEX. Comparison between the weighting structure of link period 2023 and 2024.

SETTORI DI ATTIVITÀ ECONOMICA		Link period 2023 (provisional)	Link period 2023 (revised)	Link period 2024 (provisional)
B	**Mining and quarrying**	**1.2860**	**0.6026**	**0.6026**
C	**Manufacturing**	**88.5191**	**90.1627**	**90.1650**
CA	Manufacture of food products, beverages and tobacco products	9.7618	9.0608	9.0601
CB	Manufacture of textiles, apparel, leather and related products	7.1287	7.5610	7.5612
CC	Manufacture of wood and paper products, and printing	4.5603	5.0603	5.0570
CD	Manufacture of coke, and refined petroleum products	1.0746	2.9157	2.9157
CE	Manufacture of chemicals and chemical products	4.4626	4.0260	4.0269
CF	Manufacture of pharmaceuticals, medicinal chemical and botanical products	3.0807	3.0802	3.0816
CG	Manufacture of rubber and plastics products, and other non-metallic mineral products	8.3809	8.4284	8.4277
CH	Manufacture of basic metals and fabricated metal products (except machinery and equipment)	15.8844	16.3711	16.3720
CI	Manufacture of computer, electronic and optical products, electro-medical equipment, measuring equipment and watches	2.7465	2.7823	2.7826
CJ	Manufacture of electrical equipment and non-electric domestic appliances	3.8441	3.6887	3.6904
CK	Manufacture of machinery and equipment n.e.c.	13.1160	12.5741	12.5743
CL	Manufacture of transport equipment	7.2953	7.4291	7.4290
CM	Other manufacturing, and repair and installation of machinery and equipment	7.1831	7.1850	7.1865
D	**Electricity, gas, steam and air-conditioning supply**	**10.1949**	**9.2347**	**9.2324**
Total		**100.0000**	**100.0000**	**100.0000**

Working days and seasonal adjustment

The treatment of the deterministic components and seasonality is carried out with the methodology already used for the indices on a fixed basis for 2015.

The correction procedure for calendar effects was carried out with the regression method (applied using the TRAMO procedure), which identifies the effect of working days, leap years and Easter by introducing a set of variables into the statistical model that describes the trend of the series.

The seasonally adjusted indices were obtained through the TRAMO-SEATS+ procedure. TRAMO-SEATS+ assumes that each intra-year time series is constituted of three different components, not directly observable: the trend-cycle that represents the underlying medium and long-term movement; the seasonal component that causes intra-year fluctuations; an irregular component, due to erratic factors.

TRAMO-SEATS+ uses a model-based approach consisting in identifying a reliable and representative model for the time series to be seasonally adjusted. In order to eliminate the seasonal component, it is necessary to select a decomposition model of the raw series into the previously listed different elements: the industrial production indices are seasonally adjusted using either an additive decomposition (the observed data are equal to the sum of the non-observable elements), or a multiplicative decomposition (the observed data are equal to the product of the non-observable elements).

The industrial production indices are calendar and seasonally adjusted separately for each economic activity sector, Main Industrial Grouping and for the overall index (direct approach). Since last year, the adoption of the chain-linking led to a revision of the adjustment method of the consumer goods series, previously obtained as the weighted aggregation of durable and non-durable consumer goods, while now it is seasonally adjusted through a direct approach.

The transition to the new calculation method gave the opportunity to review statistical models used for seasonal and calendar adjustment to better represent the trend of time series. In particular, the models relating to the to the large aggregates (Main industrial groupings) consumer durables and intermediate goods, to the macro-sectors D - Supply of electricity, gas, steam and air conditioning, B - Extractive activities and C - Manufacturing activities and to the sector CF - Production of pharmaceutical products and pharmaceutical preparations.

Consistently with the previous base, estimated series starts from January 2001.

Further details on models used for seasonal and calendar adjustment are available upon request.

New revision policy

The industrial production indices of the most recent month are provisional and subject to a revision, occurring with the dissemination of the following month and considering additional information received from enterprises (revised indices are disseminated in the press release).

A second type of revision occurs annually and concerns the time series of the indices. This revision aims at incorporating four types of information, which become available after the publication of the first revision. Specifically, the elements considered in the revision process are the following:

1. The release of the most recent data to define the weighting structure. As previously highlighted, at the moment for the indices of the year *t* there is a misalignment between the year of the link period (*t-1*) and the data available for calculating the structure of their weights (*t-3* for the SBS Frame and *t-2* for ProdCom). When the indices for the year *t+1* are released (where link period is *t*) also data *t-2* for the SBS Frame and *t-1* for the ProdCom become available, therefore data for year *t* are revised to update the weighting structure.

2. The updating and periodic review of the short-term statistics (turnover index and hours worked) on which the annual productivity coefficients used for the products detected through the monthly flows of hours worked are based. These products, whose weight represents 12.0% in the link period 2023 (final), are concentrated in some sectors (in particular, mechanical machinery and equipment, electrical and precision equipment, means of transport, repairs and installation of systems). It follows that the effect of the revision of the coefficients may be significant for those specific sectors.

3. The responses received from companies after the closure of the adjusted indices (which usually occurs around 60 days after the end of the reference period); this is a very limited share of responses, which on average weighs around 0.7% of the sample (measured in terms of production volume) but which can determine corrections of some significance on the disaggregated indices.

4. Subsequent corrections of information previously received from enterprises that have been reported as inaccurate by consistency checks. Usually these modifications have a minor effect on the aggregated indices, however they occasionally may cause significant revisions for specific sectors.

The revisions for the year 2024

The comparison between the 2024 average annual rate of change of the indices released on 12 February and the revised ones – data corrected for calendar effects – shows a worse annual trend for the general index (from -3.5% to -4.0%).Here – as mentioned – the effect of three factors comes into play: the late responses which also have a very marginal impact, productivity, which has its effects above all on capital goods (whose variation goes from -4.7% to -5.7%) and the role of the updated weights, visible for example in the decrease in the variation of energy (from +0.6% to +0.2%).

TABLE 9. INDUSTRIAL PRODUCTION INDEX BY MAIN INDUSTRY GROUPING. Data corrected for calendar effects. Revisions for the year 2024. Average annual changes year 2024/2023

MAIN INDUSTRIAL GROUPINGS	AVERAGE ANNUAL CHANGES	
	2024 (published on February 12, 2025)	2024 (revised data)
Consumer goods	-3.3	-3.8
Durable	-4.8	-3.8
Non-durable	-2.9	-3.6
Capital goods	-4.7	-5.7
Intermediate goods	-3.5	-3.6
Energy	0.6	0.2
Total	**-3.5**	**-4.0**

ANNEX 1. LIST OF PRODUCTS DELETED DUE TO THE MOVE TO TURNOVER

NOME DELLA CLASSE	CLASSE	SOTTOSEZIONE	PRODOTTI
Processing and preservation of fish, crustaceans and molluscs	1020	CA	Salted anchovies and sardines, Tuna in oil and in brine, Anchovies and sardines in oil, Other fish in oil and otherwise preserved, Fish and molluscs (in pieces or whole)
Tobacco industry	1200	CA	Other homogenized or reconstructed tobacco, Cut tobacco, Cigars, Cigarillos, Cigarettes
Manufacturing of fur articles	1420	CB	Confection of fur items
Manufacture of basic pharmaceutical products	2110	CF	Benzodiazepines, Antihistamines, Other narcotic substances, Steroid hormones, Nonsteroidal hormones, Ergot alkaloids and derivatives, Vitamin B12 and derivatives, Other vitamins, Opium alkaloids and derivatives, Glucosides, Other alkaloids, Erythromycins, Cephalosporins, Other antibiotics, Medicinal plant extracts, Semi-synthetic penicillins
Manufacture of medicines and pharmaceutical preparations	2120	CF	Medicinal specialties for retail prices, Food supplements of any origin: chemical, vegetal and natural, Swabs (diagnostic test kits)
Manufacture of primary batteries and electric accumulators	2720	CJ	Parts of batteries and accumulators, Lead batteries, Other accumulators
Manufacture of lighting equipment	2740	CJ	Incandescent lamps and tubes for motor vehicles, Incandescent lamps and tubes for lighting, Electric lights for motor vehicles and motorcycles, Advertising signs and illuminated indicator plates, Chandeliers, spotlights, projectors and other lighting apparatus
Manufacture of agricultural and forestry machinery	2830	CK	Wheeled tractors, Motor cultivators, motor mowers, motor hoes, agricultural motors and the like, Machines for working the soil and cultivating, Machines for sowing, transplanting, fertilizing, Machines for crop protection, Machines for irrigation, Machines for harvesting, Machines for the first processing of crops, Machines for gardening (mowers, lawnmowers, etc.), Separate parts for agricultural machines, Machines for preparing animal feed, Apparatus for spraying or pulverizing liquids or powders
Manufacture of medical and dental instruments and supplies	3250	CM	Therapeutic and physiotherapy apparatus, etc., Clinical and diagnostic equipment, Parts and accessories for medical and surgical apparatus, Medical, surgical, dental and veterinary furniture and instruments, Contact lenses, Ophthalmic lenses, Protective lenses, Protective visors, Dental prosthetic articles and appliances (excl. artificial teeth), Needles, catheters, cannulas and similar instruments, Syringes, including with needles, for medical, surgical, dental and veterinary purposes, Thermometers for clinical use (including infrared), Complete frames and spectacles - (corrective, sunglasses, sports)
Installation of industrial machinery and equipment	3320	CM	Installation of industrial machinery and equipment, Installation of electrical panels for the control or distribution of electricity