

Construction Production Index (CoPI)

Technical Project

Responsible unit: Subdirectorato-General of
Current Statistics

June 2025

Contents

	Page
1. Identification of the statistical operation	3
2. Origin of the Demand and Identifiable Need	3
3. Project Objectives	3
4. Type of Operation.....	3
5. Content	4
6. Project Characteristics	5
7. Dissemination Plan and Periodicity	12
8. Implementation Schedule	13
9. Cost estimate	14

1. Identification of the operation

- PEN code and name: 9201 Construction Production Index (CoPI).
- Responsible unit: Sub-Directorate General of Current Statistics of the INE.
- Background: The Ministry of Transport and Sustainable Mobility carries out the Construction Industry Production Index Survey (EIPIC in its Spanish initials), and from January 2026 this operation will be carried out by the INE.
- Reason for requesting the review: Change of the organisation that conduct the statistical operation.

2. Origin of the Demand and Identifiable Need

In accordance with REGULATION (EU) 2019/2152 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 November 2019 concerning European business statistics, repealing ten legal acts in the field of business statistics (EBS-R¹) and COMMISSION IMPLEMENTING REGULATION (EU) 2020/1197 of 30 July 2020, laying down technical specifications and modalities pursuant to Regulation (EU) 2019/2152 of the European Parliament and of the Council concerning European business statistics that repealed ten legal acts in the field of business statistics, the requirements for the monthly compilation of a construction production index were there established.

Until January 2026, the Ministry of Transport and Sustainable Mobility was the body responsible for compiling this index; from that moment on, Instituto Nacional de Estadística [National Statistics Institute] will conduct this statistical operation.

3. Project Objectives

The Construction Production Index (CoPI) is a volume index whose purpose is to measure the evolution of the value added of construction sector activities of the market in the short term. The periodicity of this indicator is monthly.

4. Type of Operation

As indicated in Commission Implementing Regulation (EU) 2020/1197, in its Annex IV: Definition of concepts and variables, production must be measured in current statistics in the form of indices. Therefore, the information from the Construction Production Index will be generated in the form of indices and the monthly, annual and year-to-date rates of change of these indices will also be published.

A Production Index is defined as the ratio between the volume of output companies produce in a period of time t minus the consumption necessary for it, and the volume of output produced by these same industries in the base period minus the materials used in operations needed.

¹ European Business Statistics Regulation (EBS-R)

In practice, it is not possible to obtain the quantities of intermediate consumption each month and value them at the prices of the base period. Therefore, this index is a theoretical measurement that must be approximated by means of measurements, in this case by deflating one value index —construction turnover— by means of a price index —the cost indices of the construction sector.

5. Content

5.1 POPULATION UNDER STUDY

The scope of reference of the CoPI is section F of the CNAE-2009:

- F: Construction.

5.2 GEOGRAPHICAL OR TERRITORIAL SCOPE

All statistical units located in Spain fall within the geographical scope.

5.3 DATA REFERENCE PERIOD(S)

The Construction Production Index has a monthly frequency.

The base period (the period in the index is made equal to 100) is the year 2021; that year is also the reference period for the weightings that serve as the system structure.

5.4 STUDY AND CLASSIFICATION VARIABLES

5.4.1 STUDY VARIABLES

The study variable is the value of production as defined in Annex IV of Implementing Regulation 1197/2020 and must be presented in the form of a Laspeyres index, comparing the current production volume with the corresponding production volume of the base period.

5.4.2 CLASSIFICATION VARIABLES

The operation's classification variable is the main economic activity based on divisions (41, 42 and 43) and section (F) of the CNAE 2009.

6. Characteristics of the Project

The Construction Production Index is a volume index whose purpose is to measure the evolution of the value added of construction activities of the market in the short term.

Methodologically, therefore, they are formulated in the same way as the other production indices.

$$I_t = \sum_{i=1}^N \frac{VAB_{i,0}}{\sum_{i=1}^N VAB_{i,0}} * \frac{p_{i,0} \times q_{i,t} - \sum_{j=1}^{M_t} a_{j,0} \times \delta_{j,t}}{p_{i,0} \times q_{i,0} - \sum_{j=1}^{M_0} a_{j,0} \times \delta_{j,0}}$$

Where:

t , is the reference period

N , is the number of elements that make up the index

$q_{i,t}$, is the quantity produced of product i in period t $q_{i,0}$, is

the quantity produced of product i in period 0 $p_{i,0}$, is the

price of product i in period 0

M_i , is the number of inputs needed in period i M_0 , is

the number of inputs needed in period 0

$\delta_{j,t}$ is the amount of input j needed to produce product i in period t $\delta_{j,0}$ is the

amount of input j needed to produce product i in period 0 $a_{j,0}$, is the price of input

j in period 0

In practice, the data necessary for the compilation of the index defined by the theoretical target are often not available on a monthly basis. Therefore, the value added is calculated only for the base period, especially for the calculation of the weightings. The monthly continuation of the value added from the base period is conducted by means of appropriate proxies.

One of these proxies is the deflated turnover. In this case it must be assumed that, in the short term, output evolves in a similar way to GVA.

Thus, the construction production index can be summarised as follows:

$$I_t = \sum_{i=1}^N W_{i,0} * \frac{VAB_t}{VAB_0} = \sum_{i=1}^N W_{i,0} * \frac{K * p_{i,0} \times q_{i,t}}{K * p_{i,0} \times q_{i,0}} = \sum_{i=1}^N W_{i,0} * \frac{p_{i,0} \times q_{i,t}}{p_{i,0} \times q_{i,0}}$$

By multiplying and dividing by the prices in t

$$I_t = \sum_{i=1}^N W_{i,0} * \frac{p_{i,0} \times q_{i,t}}{p_{i,0} \times q_{i,0}} * \frac{p_{i,t}}{p_{i,t}} \quad I_t = \sum_{i=1}^N W_{i,0} * \frac{p_{i,t} \times q_{i,t}}{p_{i,0} \times q_{i,0}} * \frac{p_{i,0}}{p_{i,t}}$$

Replacing price per quantity for turnover:

$$I_t = \sum_{i=1}^N W_{i,0} * \frac{VN_{i,t}}{VN_{i,0}} * \frac{P_{i,0}}{P_{i,t}} \quad I_t = \sum_{i=1}^N \frac{VAB_{i,0}}{\sum_{i=1}^N VAB_{i,0}} * \frac{VN_{i,t}/VN_{i,0}}{P_{i,t}/P_{i,0}}$$

The Construction Production Index can therefore be obtained as an aggregate index of the Turnover Indices of each activity, deflated by the construction sector cost index and weighted, depending on the value added of that activity, in relation to the total value added generated by all construction sector activities.

6.1. TURNOVER INDICES

The turnover indices for the construction sector are Laspeyres-type indices over a fixed bases obtained on a monthly basis as follows:

The elementary index, with a baseline year of 2021, is defined as:

$${}_{2021}I_e^{mt} = \frac{F_e^{mt}}{\bar{F}_e^{2021}} \times 100$$

where F_e^{mt} and $\bar{F}_e^{2021}$ refer to the invoices (turnover) received month m of year t and the mean of the base year (2021), respectively.

This expression is equivalent to:

$${}_{2021}I_e^{mt} = \frac{F_e^{m,t}}{\bar{F}_e^{2021}} \times \frac{F_e^{m-1,t}}{F_e^{m-1,t}} \times 100 = {}_{2021}I_e^{m-1,t} \times \frac{F_e^{m,t}}{F_e^{m-1,t}}$$

where:

$F_e^{m-1,t}$ is the revenue or value of new orders received during the month $m-1$ of the year t , y

${}_{2021}I_e^{m-1,t}$ is the index of the elementary aggregate e for month $m-1$ of year t in base 2021.

Once the basic indices are calculated, the aggregate indices are obtained as weighted sums of the basic indices.

$${}_{2021}I_K^{mt} = \sum_{e \in K} {}_{2021}I_e^{m,t} \times {}_{2021}W_{e/K}$$

where:

${}_{2021}I_e^{mt}$ is the elemental index for month m of year t .

${}_{2021}W_{e/K} = \frac{F_e^{2021}}{\bar{F}_K^{2021}}$ is the weight of the elementary aggregate e over the functional aggregate in base 2021.

In the case of the Construction Production Index, the aggregate index is considered to be that of section F of CNAE 2009.

The weightings involved in the calculation of the aggregate indices are obtained from data in the Structural Business Statistics: Construction Sector.

6.2. DEFLATOR

The deflator used is the cost indices of the construction sector.

6.3 FORMULATION OF THE INDICES

The Construction Production Index is a fixed-base Laspeyres-type index.

The following sections define the elementary and aggregate indices.

- Elemental aggregates:

An elementary aggregate is the component with the lowest level of aggregation for which indices are obtained and in whose calculation no weightings are involved. The indices of these aggregates are called elementary indices or simple indices.

In the case of the CoPI, the divisions of section F of the CNAE 2009 are considered to be elementary aggregates.

- Elementary indices:

The elementary indices of the CoPI are obtained as the ratio between the Turnover Index for that activity and the Cost Index.

$${}_{2021}IPCO_m = \frac{{}_{2021}ICN_e^m}{{}_{2021}IC_e^m}$$

- Aggregate indices:

An aggregate index is obtained as a weighted sum of the elementary indices belonging to that level of aggregation, using as weightings the Value Added generated in that activity or sector in the base year (2021) with respect to the Value Added generated by all the activities or sectors included in that level.

$${}_{2021}IPCO_m = \sum_{e=1}^N \frac{VAB_{e,2021}}{\sum_{e=1}^N VAB_{e,2021}} \times {}_{2021}IPCO_e^m = \sum_{e=1}^N W_{e,2021} \times {}_{2021}IPCO_e^m$$

The source of information to obtain the weighting is the Structural Business Statistics: Construction Sector from the base year (2021).

In the case of the CoPI, the index obtained for section F of the CNAE 2009 is considered as the aggregate index.

7. Dissemination plan and frequency

7.1 DISSEMINATION PLAN

European Regulations establish the dissemination not only of the original indices, but also calendar-effected indexes and those adjusted for seasonal and calendar effects.

The seasonal adjustment of the Construction Production Index is carried out in accordance with the INE Standard² for the correction of seasonal and calendar effects in short-term series that are available in INEbase. This standard follows the recommendations of the European Union contained in the “ESS guidelines on seasonal adjustment”³.

The series adjusted for calendar effects and the series adjusted for seasonal and calendar effects are obtained using the JDemetra+ software (version 2.2.0)⁴

JDemetra+ has been officially recommended by Eurostat since February 2015 for performing seasonal and calendar adjustments in the official statistics of the European Union⁵.

Time series analysis methodology recommends a periodic review of the models in order to incorporate the most current information. This causes the adjusted series of calendar effects and seasonal and calendar effects to always be provisional.

7.1.1. INDICES ADJUSTED FOR CALENDAR EFFECTS.

² http://www.ine.es/clasifi/estandar_efectos_estacionales.pdf

³ <https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/w/ks-gq-24-012>

⁴ <https://github.com/jdemetra/jdemetra-app/releases/tag/v2.2.0>

⁵ https://ec.europa.eu/eurostat/cros/system/files/Jdemetra_%20release.pdf

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

The length of the month is not completely absorbed by the seasonal component, as the number of days in February is not the same each year. This non-seasonal portion of a month's duration component must be removed in series adjusted for calendar effect.

On the other hand, the composition of the month refers to variations in production caused by the different number of public holidays in the same month in subsequent years.

Following the INE standard and according to Eurostat recommendations, the method used for the correction of calendar effects is based on regARIMA models (regression models with stationary ARIMA errors).

For each activity, four intervention variables are used to collect the following three effects:

- a) The working-day effect
- b) The Holy Week effect
- c) The leap-year effect

7.1.2. INDICES ADJUSTED FOR SEASONAL AND CALENDAR EFFECTS.

Once the calendar effects are adjusted, a further step is taken, and the indices of seasonal effects are adjusted. Seasonal fluctuations are movements that occur with a similar intensity each month, each quarter or each season of the year, and which are expected to continue occurring.

Seasonally-adjusted series, that is, those that are adjusted for seasonal and calendar effects, provide an estimate of what is "new" in a series (a change in the trend, the cycle and the irregular component).

7.2 DISSEMINATION FREQUENCY

The information will be disseminated monthly, with a 45-day delay compared to the reference period. The original data will be published, corrected for calendar effects and seasonally adjusted, as well as the indices and the rates of change: monthly, annual and year-to-date for each of these.

8. Implementation schedule

Phases of the CoPI statistical operation	<i>Expected dates / deadlines</i>
Analysis of the EIPIC methodology. Methodological development of the CoPI.	Starting March 2024
Sample design and determining the CoIP sample	From June 2024
Design of the new questionnaire, validations, registration design, and the documentation necessary for data collection	From September 2024
Development of the scripts necessary to produce the CoIP	From March 2025
Development of a methodological handbook and reference metadata	May 2025
Presentation at the High Council of Statistics	June 2025
Start of questionnaire collection	October 2025
Analysis and modelling of the CoIP series to perform seasonal adjustment	December 2025
Monthly dissemination and submission of data to Eurostat	From March 2026
Preparation and submission of metadata to Eurostat	April 2026

9. Cost estimate

The budget allocation needed for its funding in the year 2024 amounts to 201,550 euros.