

編 製 方 法 說 明

營 造 工 程 物 價 指 數

一、查編沿革：

民國 62 年，國際間首次發生能源危機，國內外物價普遍上漲。政府為避免因營建材料及工資大幅上漲，影響已發包工程進度，乃自 64 年度起在中央政府總預算執行條例中明定以「臺灣地區躉售物價分類指數之營造業投入物價指數」作為補償救濟手段，由於該指數只涵蓋材料部分，工資並未納入，未盡周延；78 年度起，材料價款仍用「臺灣地區躉售物價分類指數之營造業投入物價指數」，而工資價款則依據「臺灣地區營造業受雇員工平均經常性薪資指數」。至於地方政府方面，臺灣省政府及臺北市政府主計處自民國 70 年起分別編有「臺灣省營造工程物價指數」及「臺北市營造工程物價指數」，除總指數外，另細分為材料及勞務（含工資及設備租金）兩類指數，作為調整工程價款依據，而高雄市政府則援用中央政府總預算執行條例規定辦理。

鑑於中央政府及省、市政府調整工程條款依據不同指數，且民國 77 年來營造工程勞務類指數漲幅與營造業受雇員工薪資指數漲幅差距較大，造成因適用指數不同而補償金額差異現象。故為衡量整體營造工程價格變動狀況，提供調整工程價款之適當指數，行政院主計處(現為主計總處)於 79 年 6 月組成專案小組，研究「臺灣地區營造工程物價指數」查編方式，並自 80 年 1 月起試編，同年 7 月正式編布。

為配合各項物價指數基期改編於民國 82 年改以 80 年為基期，並更新查價項目及權數結構，嗣後每 5 年換基 1 次。85 年基期改編，指數改採點銜接法，以 86 年 12 月為銜接點，已發布指數不再重新計算，其後各基期改編均採點銜接法；110 年基期以 111 年 12 月為銜接點，於 112 年 2 月（資料時間 112 年 1 月）公布。

二、編製目的與用途：

(一) 編製目的：為衡量臺灣地區營造工程投入材料及勞務之價格變動情形。

(二) 主要用途：

1. 作為調整工程款之參據。
2. 供政府有關施政決策之參考。
3. 提供民間業者及學術研究參考資料。

三、查價項目：

以民國 110 年臺灣地區營造工程投入成本結構為基準，選取代表性營造材料及勞務為查價項目，計 115 項。

四、指數分類：

總指數下分材料及勞務 2 個大類，12 個中類；另依工程性質編算土木、建築及相關工程共 10 個複分類指數。

五、指數基期：

以民國 110 年全年平均=100。

六、權 數：

依據本總處所辦「110 年基期營造工程物價指數權數結構調查」結果為權數。

七、價格查報：

(一) 查價方式：採派員實地調查與電話調查。

(二) 查價地區及對象：

1. 材料類：以新北市、臺北市、桃園市、臺中市、臺南市、高雄市及花蓮縣營建材料具代表性(或大型)之建材供應商。
2. 勞務類：以內政部營建署、新北市、臺北市及高雄市政府所屬工程單位、民間大型工程發包廠商及機具租賃廠商。

(三) 查價基準：以查價日實際成交價格為準，如無交易時，則以行情價格代替或沿用上月價格。

(四) 查價日期：

1. 材料類：鋼筋、砂石等重要資材每月查價 3 次，查價日為每旬逢 4 之日；其餘一般資材每月查價 1 次，查價日為每月 14 日。
2. 勞務類：每月 15 日查價 1 次。

(五) 查價樣本廠商之選定：

1. 材料類：由調查員選定當地主要大宗交易之建材供應商定期查價。
2. 勞務類：由調查員選定當地具有持續性、穩定性且擁有相當數量工人或機具之工頭或廠商定期查價。

八、計算方法：

(一) 指數公式：總指數與類指數採用拉氏公式計算。

1. 計算各地區項目價比：

$$\frac{P_{i,j,k}}{P_{11112,j,k}} = \frac{1}{n_{j,k}} \sum_o \left(\frac{P_{i,j,k,o}}{P_{11112,j,k,o}} \right)$$

2. 計算項目價比：

$$\frac{P_{i,j}}{P_{11112,j}} = \frac{\sum_k \left(\frac{P_{i,j,k}}{P_{11112,j,k}} \right) \cdot W_{j,k}}{\sum_k W_{j,k}}$$

3. 計算指數：

$$I_{i/110}^{110CH} = \frac{\sum_j \frac{P_{i,j}}{P_{11112,j}} \times (P_{11112,j} \times Q_{110,j})}{\sum_j (P_{11112,j} \times Q_{110,j})} \times I_{11112/110}^{105CH}$$

i：計算期

j：項目

k：查價地區

P：價格

Q：數量

P₁₁₁₁₂：111年12月價格

$\frac{P_{i,j,k,o}}{P_{11112,j,k,o}}$ ：

第 i 期第 j 項目 k 查價地區第 o 花色對111年12月之價比

$\frac{1}{n_{j,k}}$

第 j 項目 k 查價地區之花色數

$\frac{P_{i,j,k}}{P_{11112,j,k}}$ ：

第 i 期第 j 項目 k 查價地區對111年12月之價比

W_{j,k}：

第 j 項目 k 查價地區基期年之地區權數

P_{11112,j} × Q_{110,j}：

第 j 項目110年營造投入數量以111年12月價格衡量之總投入金額

I_{11112/110}^{105CH}：

105年市場籃，以110年指數為100之111年12月指數

I_{i/110}^{110CH}：

110年市場籃，以110年指數為100之 i 計算期指數

(二) 年指數：年指數為各月指數之簡單算術平均(取 2 位小數)。

(三) 查價項目缺貨缺價之更換花色處理：

改查性質相類似之新花色牌號價格，並以漲跌率推算其基期價格，估算方法如下：

$$\text{新查商品基期價格} = \frac{\text{原查商品基期價格}}{\text{原查商品(缺貨缺價)前1計算期價格}} \times \text{新查商品前1計算期價格}$$

九、指數發布：

每月結束後 5 個工作日發布(如遇春節或較長連假，將酌予調整)上月物

價變動相關結果，並公布於本總處網站(<https://www.dgbas.gov.tw>)及中華民國統計資訊網(<https://www.stat.gov.tw>)，詳細結果刊載於物價統計月報電子書。

Description of Methods Used in Compilation of Construction Cost Index

1. Historical Notes

In 1973, the first worldwide energy crisis arose, leading to extensive price rises at home and abroad. Avoiding that sharp rises in labor cost and prices of materials from adversely affecting the progress of the construction projects already under way, the R.O.C. Government compiled the “Index of Construction Input Prices” in 1975 within the “Statute for Execution of Central Government General Budget”. Being one of the subgroups of Index of Wholesale Prices, the Index of Construction Input Prices should be serving as a solution for the prices rising problem, however, it was considered incomprehensive since its coverage was only prices of materials but wages. Not until 1989 was the cost of the labor adjusted according to the “Index of Average Regular Earnings Per Worker Employed by the Construction Industry in Taiwan Area,” while construction materials continued to be adjusted on the basis of “Index of Construction Input Prices.”

At the local levels of the public sector, the Department of Budget, Accounting and Statistics (DBAS) of the Taiwan Provincial Government and the DBAS of the Taipei Municipal Government started compilation of the “Construction Cost Index in Taiwan Province” and the “Construction Cost Index in Taipei Municipality” in 1981, respectively. Each of these two sets of indicators contains a general index and two subgroup indices for construction materials and services (covering wage and rent for equipment). These indices have been used to adjust the construction costs of the projects undertaken by these two governments. The Kaohsiung Municipal Government, following the lead of the Central Government, adopts the way and the indices as provided in the “Statute for Execution of Central Government General Budget” to make adjustment.

Since the Central, Taiwan Provincial, and Taipei Municipal Governments have adopted different indices to adjust the construction cost. And in the past several years, the price indices for construction services and those for average regular earnings per construction worker used by these three governments were found to have a fairly big difference in pace of rise. As a result, the different price indices, together with different paces of rises, produce different criteria for construction cost adjustment. To accurately measure the fluctuation in cost of construction works for the economy as a whole and to compile a set of indices to be used as common criteria for

adjustment of construction cost. In January 1991, a project was launched to compile the “the Construction Cost Indices in Taiwan Area”. In July 1991, the set of indices was formally published.

In accordance with other price indices, construction cost index has been rebased for 1991 since 1993, and the base period is revised once every five years. From the base year of 1996, we introduced the relative importance to compile the indices, and the link period was next Dec. of base year. In the base year of 2021, the indices were computed in the same way as before, and the link period was Dec. 2022. The new indices will be officially published in February 2023 (With data of January 2023).

2. Purpose and Uses

(1) Purpose

The set of indices is to measure the price movements of materials and services put in construction works in Taiwan Area.

(2) Uses

- ① As a basis for adjustment of construction cost.
- ② As a reference for governments in formulation of policies and administrative programs.
- ③ As a reference for the private sector and the academic community in their research and study.

3. Priced Items

According to the input cost structure of construction in 2021, 115 representative priced items of materials and services are selected.

4. Index Classification

The construction cost indices are classified into materials and services groups and 12 subgroups. By nature of construction work, construction cost indices are also classified into ten groups for architectural works and civil engineering works.

5. Index Base Period

The average index for 2021=100.

6. Weights

The value derived from the construction cost structure survey in 2021 conducted by Directorate-General of Budget, Accounting and Statistics (DGBAS) is used to compute the weight for each items.

7. Pricing

(1) Price Surveyed

Price data are collected on site or by telephone interviews.

(2) Coverage of the survey

- ① Materials: Major construction material firms are selected, which belong to New Taipei, Taipei, Taoyuan, Taichung, Tainan, Kaohsiung and Hualien.
- ② Services: Major construction works are selected, which belong to the Construction and Planning Agency of Ministry of the Interior, and the Public Works of New Taipei, Taipei and Kaohsiung City Government and the private enterprises.

(3) Price Base

The designated companies are required to report the actual selling prices of selected commodities with the same specification.

(4) Date of Pricing

- ① Materials: It is determined by the feature of the priced items. Some important items (ex. Steel bar, Sand & Gravel, etc.) may be priced three times a month (on the 4th, 14th and 24th of the month); other items may be priced once a month. (on the 14th of the month)
- ② Services: on the 15th of the month.

(5) Designated companies:

- ① Materials: Major suppliers of construction material are selected by local investigators.
- ② Services: Supervisor of contracted work who can report the price continuously and stable are selected by local investigators.

8. Computation

(1) Formula: The general index and group indices are computed by the derived from of Laspeyres Weighted Aggregate Formula.

① Regional price relatives

$$\frac{P_{i,j,k}}{P_{11112,j,k}} = \frac{1}{n_{j,k}} \sum_o \left(\frac{P_{i,j,k,o}}{P_{11112,j,k,o}} \right)$$

② Item price relatives

$$\frac{P_{i,j}}{P_{2022.12,j}} = \frac{\sum_k \frac{P_{i,j,k}}{P_{2022.12,j,k}} \times W_{j,k}}{\sum_k W_{j,k}}$$

③ Index

$$I_{i/2021}^{2021CH} = \frac{\sum_j \frac{P_{i,j}}{P_{2022.12,j}} \times (P_{2022.12,j} \times Q_{2021,j})}{\sum_j (P_{2022.12,j} \times Q_{2021,j})} \times I_{2022.12/2021}^{2016CH}$$

i: current period j: item k: locality
P: price Q: quantity P_{2022.12} : the price for December 2022

$n_{j,k}$ number of specification for the jth item and kth area

$W_{j,k}$: area weight

$P_{2022.12,j} \times Q_{2021,j}$: average quantity of construction input in 2021 basket for each priced item, valued at December 2022 price

$I_{111.12/110}^{105CH}$: the price index for December 2022 with 2016 basket and 2021 as the base period

$I_{i/110}^{110CH}$: the chain price index for i period with 2021 basket and 2021 as the base period

(2) The yearly index is the arithmetical average of the monthly indices, rounded to nearest hundredth.

(3) Treatment for lack of priced items

If the item of a specific brand is out of supply on market, a similar commodity bearing a different brand is priced and the adjustment should be made according to the following formula:

$$\text{Price of substitute commodity at base period} = \frac{\text{Price of originally surveyed commodity at base period}}{\text{Price of originally surveyed commodity at period prior to current one}} \times \text{Price of substitute commodity at period prior to current one}$$

9. Publication

The monthly index is published on the 5th working day (subject to postponement

due to Lunar New Year or other consecutive public holidays) after the end of the reference month in news release. The e-book "Price Statistics Monthly" with the detailed figures is made available immediately at the time of release; please see <https://eng.dgbas.gov.tw> or <https://eng.stat.gov.tw> for details.