

The Method and Application of the Production Index in China

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The State Statistics Bureau of China started to research the method of the index of industrial production (IIP) at the end of 1980s. Since 1997, the monthly IIP is calculated in the State Statistics Bureau and 30 provinces (except Tibet).

1.The basic method

IIP is obtained by computing the weighted average of the production quantity index of the representative products. The aggregative expression of the formula is

$$K = \frac{\sum \frac{Q_1}{Q_0} \times Q_0 P_0}{\sum Q_0 P_0}$$

where

Q_1 = quantities produced in the reporting period

Q_0 = quantities produced in the weighted base period

$$\frac{Q_0 P_0}{\sum Q_0 P_0} = \text{weights}$$

1)How to chose the representative products

Whether choosing the representative products is reasonable will affect the accurate degree of the IIP.

So we make some rules, including

i) to chose the products by industrial branch

ii) to chose the very important products whose total value is over 70% of the whole branch' s value

iii) to chose the products which are produced steadily

iv) to chose the products which show the tendency of the branch' s development

2) How to calculate the weights of the representative products

The weights are calculated by industrial value-added. First, we calculate the weights of 2 -digit branches according to the yearly value-added by branch. In the same way, we can get the weights of 3-digit and 4-digit branches. Last, we calculate the weights of the representative products according to the proportion of the product' s value. The weights of branches and representative products are fixed in 5 years.

2.The application of IIP in China

1) To calculate the monthly IIP

The monthly IIP in China is a chain index, which is calculated by the fixed benchmark index in the reporting period compared with the index in the same period in the preceding year. First we calculate average monthly quantities of the representative products in the weighted base period. Then we can get the fixed benchmark index by comparing the monthly quantities in the reporting period with average monthly quantities. In the same way, we can get the fixed benchmark index in the same period in the preceding year. So we can get the monthly IIP.

2) How to reflect the changes of IIP influenced by changes of products' quality

Now, IIP is calculated by quantity of products in China. Because the selected representative products are different in quality, the result of production index can not reflect the changes of index influenced by product's compose and product's technology improvements. So the calculated result of production index is lower than actual growth. The way for solving this problem generally is calculating production index by value of products (gross output or turnover of products). The changes of value of products at current price include the influence of price changes and volume changes, so the first thing that should be done is to use price index to exclude the price influences. Price index for the same products is necessary. But now in China, the price index is not convenient to use to calculate IIP. It is necessary to improve the statistics of the price index.

3) Classification of IIP

For meeting demand that government use different classification of IIP to manage economy, we must calculate the classified IIP, including:

i) Classified by industrial branch

IIP classified by industrial branch is important for economic analysis in shortly period. Because the representative products are selected by branch, it is easy to calculate IIP of the 2-digit and 3-digit branches.

ii) Classified by light industry and heavy industry

IIP classified by light industry and heavy industry is the peculiar classification. For calculating this kind of index, we add special cord under every 4-digit branch, according to this cord, we can calculate IIP classified by light industry and heavy industry every month.

iii) Other classification divided by enterprises' scale, registration's type, etc.

Calculating IIP of this kind of classification is quite difficult, our way to solve this problem is to estimate IIP of each group.