

Researches on Methods of Revising the Historical Data of City and County GDPs

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Abstracts

Revising the data of GDP is an important task of the national economy accounting. According to the international rules, the original data of GDP should be revised after the Economic Census because of the change of accounting method and the increase of resources. According to the national adjustment proposal, the historical annual data has been revised from the central government to local offices after the national census of the tertiary industry and the first and the second economic census. Lin fen Bureau of statistics has made 4 revisions of its historical data of GDP covering 17 counties and cities. A practical new method of revising the data of GDP is brought forth in this passage which is based on the former revising experience. That is to say, this method which is highly operational can be put into practice widely in the grass-roots work.

Key words: GDP revising method, economic census, industry, profession, GDP data

1. Introduction

Revising the data of GDP is an important task of the national economy accounting. According to the international rules, the original data of GDP should be revised after the Economic Census because of the change of accounting method and the increase of resources. According to the national adjustment proposal, the historical annual data has been revised from the central government to local offices after the national census of the tertiary industry and the 2004、 2008 economic census. Lin Fen Bureau of Statistics has made 4 revisions of its historical data of GDP combing the practical condition of cities and counties on the premise of carrying out provincial relevant principles. On the one hand, this measure guarantees the effective connection of historical GDP data. On the other hand, it can offer correct and accurate data for governments of each level to summarize the reformation experience of development and make a new five-year plan. At the same time, this essay explores and summarizes a practical revising method so as to offer reference for making a new plan of revising grassroot GDP data.

2. Results

Industrial Classification of Revising County Historical Data

In ordinary annual GDP accounting, national economy is divided into 3 major industries including 19 junior ones and 51 small ones.

The primary industry: farming, forestry, fishing.

The secondary industry: extractive industry, manufacture industry, power industry, coal and gas industry, construction industry.

The tertiary industry: all the service industries except for the above industries. (like transportation industry, warehousing industry, postal industry, information transmission, computer service, software industry, wholesale and retail, accommodation and catering industry, finance and insurance, real estate industry, leasing and business service, scientific research, technical service, geological exploration, water conservancy, environment and public facilities management industry, resident service and other services in education、 health、 social security、 social welfare、 culture、 sports and entertainment、 public management and social organization etc.)

For the convenience of data connecting, the industry of revising GDP data has a principle: the

revising should be based on seasonal accounting. That is to say, the revising is made mainly on those ten profitability and non-profitability industries like farming, industry, construction industry, transportation industry, warehousing industry, postal industry, wholesale and retail, accommodation and catering industry, finance and insurance, real estate industry, leasing and business service etc.

Determine the time of revising historical data

In principle, the time of revising historical GDP data is not fixed for every county. They can choose the revising time with discretion according their practical condition.

First, they can determine the revising time according to the reason of GDP data' change from annual economic census. There are two changes according to the GDP data calculated through 2008 economic census and the GDP data calculated through conventional information: one is the change caused by the changing of calculating method. Take the industry for example; conventional method used production method to calculate the added value. But the second nationwide economic census combined production method with income method to calculate the added value; for construction industry, in conventional years, added value was calculated through the principle of territory while the second economic census did through construction enterprises; two is the change caused by the increasing of resources of material including the material of some existed economic activities (like the material of individual business, the material of industrial activity units), and the increasing of material resources of some new-born economic activities. Different reasons of change should be treated differently because they occurred in different years.

Second, determine the revising time according to the change rate of annual census data. Every county should test and determine the revising time based on their practical conditions and focused on the industry which has the biggest change of added value. In general, when the change rate of added value is too big, prolonging the revising time can guarantee the effective historical data connection.

Third, determine the revising time considering the local historical adjust mental data condition. GDP data has been revised for 4 times: the first revising was after the tertiary industry census in 1992, the second was in 1997, the third was in 2004 and the fourth was after the census in 2008. Every revising time is different for each county, so in order to guarantee the effective connection of historical data, every county should determine the revising time considering the local historical adjust mental data condition.

Fourth, refer to the revising time of provinces and cities.

The basic principles of revising the historical data for counties

The first is to keep basically same increasing trend. After revising, the increasing trend of every industry' s added value and GDP should keep basic agreement with the original increasing trend of historical data to continue the original changing of historical data .

The second is to keep basically same deflator. Adopt the deflator before revising (current price speed/ comparable price \times 100) to keep basic agreement between the GDP deflator of every industry after revising and the original historical data.

The third is to give priority to big figures while consider small figures as assistant. Consider and revise the data which needs to adjust absolute amount and has big increasing range. The absolute amount and the increasing range which has small change also need to be revised. However, there is no need to revise those that changed slightly and has tiny effect.

The fourth is to give priority to present prices and less to constant prices. Revise the added value and the total GDP of every industry accounted by present price first. Then, revise the added value

and GDP of every industry accounted by constant prices.

The fifth is to give priority to present time and less to history. Focus on revising data of census years and recent years.

The concrete steps of revising county GDP data

The first step is to combine and adjust. Classify and combine all the industries of annual GDP into the above ten industries according to the standard of industry classification. After combining, compare the data with census data and calculate the error and determine those industries that need to be revised.

The second step is to revise the total amount first and then the speed. In the time order of revising, revise the added value of every industry and the absolute amount of GDP. Later, revise the developing speed of every industry and GDP.

The third step is to revise present prices first and then comparable prices. Revise the added value accounted by present prices first and after determining the total GDP and the added value of every industry, revise the added value and GDP accounted by comparable prices.

The fourth step is profession first and industry second and GDP the last. From profession to the three industries and then to GDP, both the absolute amount's revising and the developing speed should be done with this order.

The basic revising methods of county GDP data

There are three accounting methods for conventional annual GDP: production approach, income approach and expenditure approach.

(1) Production approaches for revising GDP data

1、Revising methods for present price data

The revising methods of present price data are constant adjustment approach、increment ratio approach、trend deviation approach etc. In practice, is relatively scientific.

What is the trend deviation approach? It is a calculating method which is used to calculate the trend value of historical data according to the economic census data and then get a new revised value of historical data by making use of the rate between original practical value and the trend value of the historical data to revise the trend value of historical data which is calculated based on the economic census data. It can be illustrated by formula:

$$R_t = R_t' (X_t / X_t')$$

R_t means the revised value of a certain profession's added value in the year of t , and R_t' means the trend value of added value calculated according to the economic census data of a certain trade. X_t means the original value of a certain trade's added value in the year of t , and X_t' means the trend value of a certain profession.

Take Lin Fen for example, the following are concrete steps:

The first step: calculate the speed of annual growth. This calculation includes two items: one is to calculate the annual growth speed of the original historical data of added value during the revising time for every profession according to the added value calculated through the conventional material in 2008 and through census material (V); the other is to calculate the annual growth speed of added value through census material (V').

The second step: calculate the trend value. Calculate the trend value of added value's yearly historical data during the revising period according to the data in the first year of revising and the average growth speed of the above years (X_t'). Besides, calculate the trend value for the historical data of added value through census material (R_t').

The third step: calculate the rate between the actual value and trend value of yearly historical data (X_t/X_t').

The fourth step: get the revising value of historical data during the revising period by multiplying the trend value of added value which is calculated through census material and the above rates.

2、 The adjusting methods of the developing speed of comparable value

First of all, calculate the deflator. Calculate the annual deflator of every profession during the adjusting period according to the developing speed of present value and comparable value of the historical data. This calculation can be illustrated by formula:

The deflator = the developing speed of original present value/ the developing speed of original comparable value $\times 100$

Then, calculate the yearly developing speed of present value's added value after revising according to the added value of present value of every profession which has been adjusted.

The last, calculate the developing speed of the comparable value according to the yearly developing speed of the present value and the deflator of the year. It can be illustrated by formula:

The developing speed of comparable value after revising= the developing speed of present value after revising/ deflator $\times 100$

(2) Income approaches for revising GDP data

1、 The revising method of present value data

As the steps and methods described above, it is better to adopt the trend deviation approach to revise the present GDP value data which is calculated through the income approach.

2、 The developing speed's adjusting approach of the comparable value

The revising method of comparable value's developing speed is the same with the production approach. First, deflate the developing speed of every profession's present value after revising by using the deflator of original historical data. Then multiplying revised comparable value's developing speed and the added value of the former year to get the comparable value's added value of every profession. Last, plus all the values one by one to get the comparable value's added value of every profession, the GDP of the comparable value and the developing speed of every industry and GDP.

3、 The revising method of structured data

Every profession adopt different dealing methods to revise the structured data of laborers' remuneration、 taxes on production、 net depreciation of fixed assets and operating surplus. Like the private industry, it need to calculate according to the related index of the economic census or split according to the superior's united approach. For those who do not have referred index can calculate according to the added value's rate of original historical data.

(3) The revising method of GDP measured by expenditure approach

GDP measured by expenditure approach mainly includes 3 parts: the final consumption expenditure、 gross capital formation and net outflow of goods and services. In conventional years, when accounting GDP, the accounting material of the government and residents comes from the investigating data of rural and urban residents and financial statement material. But census does not involve consumption、 net outflow of goods and services. Therefore, the major content of revising GDP measured by expenditure approach is the gross capital formation.

The steps and methods of The revising method of GDP measured by expenditure approach and the developing speed of the comparable value are the same with the expenditure approaches. What

should be pay attention to is that the revised expenditure approach and the revised income approach should connect with the speed and total amount of GDP measured by expenditure approach.

The controlling method of county GDP data's revising quality

In order to improve the revising quality of GDP data, correctly reflect the historical changing trend of every county's economic development and avoid deviation, it is necessary to take the following measures:

(1) carry out "the three unities", guarantee the science and high efficiency of revising method

First of all, unify the time and address to make sure that all the counties work in step and in unity. So they need to hold meetings and gather all the accounting units. Besides, they need to get training and learn the method of revising the historical GDP data. During the meeting, they can consult and solve those questions by group discussion and adjust their county's historical GDP data. From the experience of the past historical GDP data adjustment in Lin Fen, revising together is not only of high efficiency, but also has a better effect.

Second, unify the steps and methods to achieve the aim of sharing experience、 saving time and high efficiency. In order to guarantee the quality of revising historical GDP data, the city bureau should summarize its experience on revising GDP data , work out and issue the revising procedure of county GDP's total amount and speed. It should also contain the involved industries and professions、 the trend graphs before and after revising、 the absolute difference and the rate of added value etc. Reducing the workload of those accounting staffs and adopting the united model to improve the revising speed.

The last, guiding and auditing together to make sure the two levels have the same standard. Before revising, they should make sure the principle and the scope. While revising, they need to unify steps and methods. After revising, unify the content and standard to guarantee the effective connection of historical data among every county and city.

(2) strengthen the scientific evaluation, guarantee the effective connection of revised historical data

The first is to draw the trend chart to guarantee the agreement of changing trend. In principle, they should draw the trend chart of all the revised professions and GDPs and with this judge whether the revised result of every profession and GDPs agree with the historical changing trend. They should also find out the reason of profession's deviation in time and adjust them.

The second is to compare the absolute difference and guarantee the reasonable change of revised total amount. Calculating and comparing the revised absolute amount of increasing and decreasing means comparing and analyzing whether the yearly revised absolute amount correspond with the revising rules. At the same time, the data which has unusual problems should be checked and adjusted.

The third is to compare all kinds of coefficients to guarantee the errors after revising are within the reasonable scope. For the one side, it is necessary to calculate、 compare and analyze the added value rates of every major professions to see if they are reasonable like the professions: the industry、 the wholesale and retail and the accommodation and catering. For another side, calculate and compare the GDP ratio、 consumption rate 、 the investment rate of every counties' financial revenue. Those unreasonable data should be checked carefully.

The fourth is to compare related indexes to make sure that the revised data can fully reflect the economy of the year. Analyze and evaluate every county's GDP data according to the increasing change condition of major economic indexes. Combining the professional statistical data of every

county's industry、 agriculture、 construction、 wholesale and retail and catering with the gross financial revenue and the loan balance. Consider the the effect caused by the change of indexes from industrial products' prices and from the consumption prices to see if the revised GDP data and its developing range correspond with the local economic development and change conditions.

Bibliography:

the trial method of revising GDP annual historical data using the results of economic census in Shan Xi province

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